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REPORT ON
A COMBINED HELICOPTER-BORNE
MAGNETIC AND ELECTROMAGNETIC SURVEY
PRICE AND FRIPP TOWNSHIPS
PORCUPINE MINING DIVISION
ONTARIO

NTS: 42A/6

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MINING LANDS SECTION

TORONTO, ONTARIO, CANADA
JULY, 1983

J. A. McCANCE, P.Eng.
SAMIM CANADA LTD.

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PRICE AND FRIPP TOWNSHIPS PORCUPINE MINING DIVISION

A Combined Helicopter-borne Magnetic and Electro-magentic Survey, 1983

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(Scale - 1/10,000)

42A/6

ARGENTEX-LENORA OPTION
PRICE AND FRIPP TOWNSHIPS PORCUPINE MINING DIVISION

A COMBINED HELICOPTER-BORNE MAGENTIC AND ELECTROMAGNETIC SURVEY, 1983

1. INTRODUCTION

In March 1983, Samim Canada Ltd. optioned a 153 claim lead-zinc prospect in Price and Fripp Townships, Ontario.

An exploration program was initiated based upon Samim's geological assessment of this locale as a highly prospectable setting with known sulphide occurrences, a new zinc discovery in 1981, and favourable land status and location.

As part of this exploration program a multi-sensor airborne survey was flown by Aerodat Limited on March 30th and 31st, 1983 from an operations base at Timmins. Equipment operated included a 3 frequency electromagnetic system, a VLF-EM system, a magnetometer and a radar positioning system. A total of 207 line kilometers were flown at a nominal line spacing of 200 meters to provide further data for both direct targeting parameters and indirect mapping aids in covered areas.

The purpose of this report is to provide an assessment of these multi-sensor airborne results.

2. SURVEY AREA

The survey area consists of two overlapping survey blocks as shown in Figure 1, at a scale of 1:250,000. The flight line direction in the northern block was N25°E and in the southern block was N75°E. The outline of these respective blocks are also indicated on the 1"=1/2 mile claim maps (see Appendix B attached).

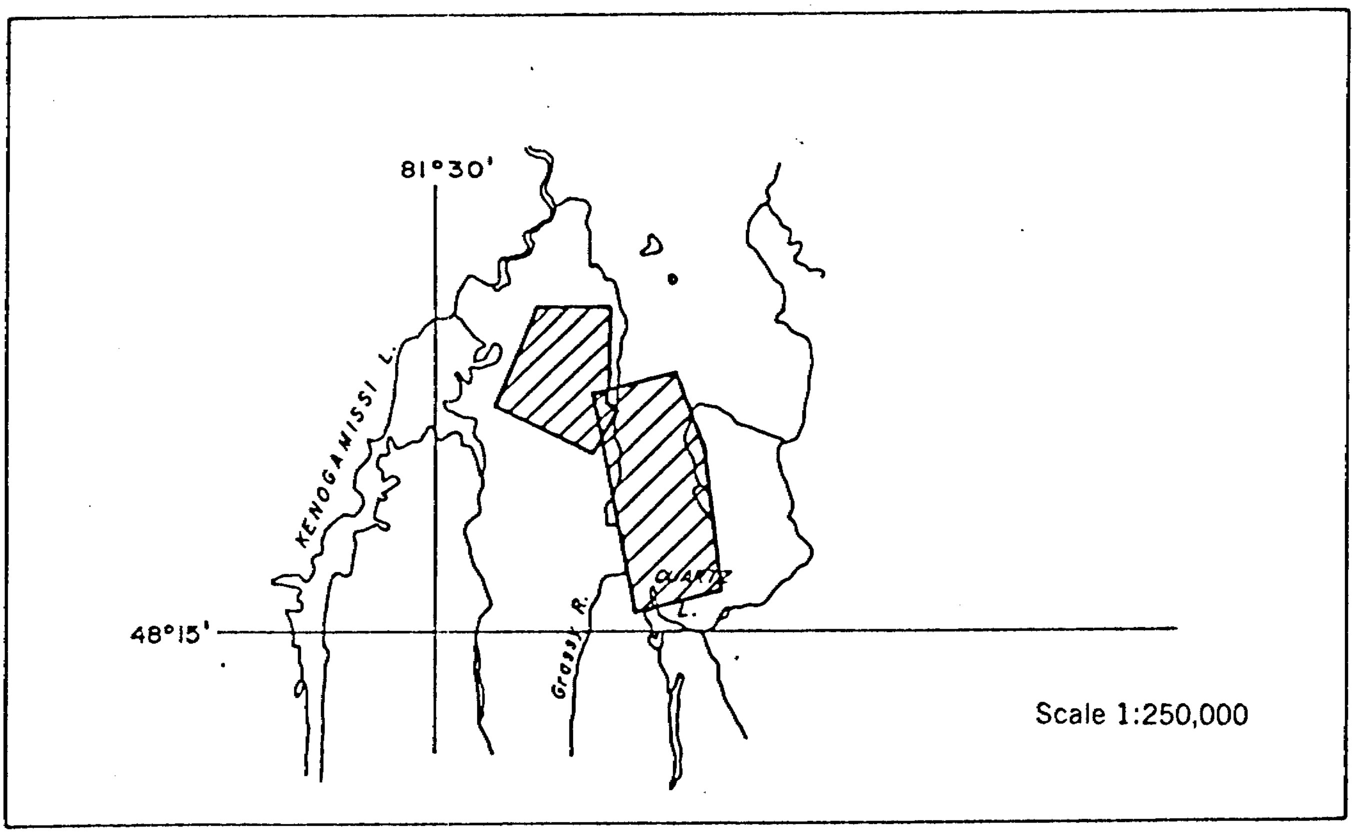

FIGURE 1: Location of Survey Area

3. LOCATION, ACCESS AND TOPOGRAPHY

The approximate center of this property is located about 24 kilometers south of the city of Timmins (see Figure 2) with the property limits generally being the west-central and south-central parts of Price Township also extending a short distance into Fripp Township to the south. Co-ordinates of this centerpoint are 48°18'N latitude and 81°25'W longitude as indicated on topographic map 42A/6 "TIMMINS".

The property is accessible via bush road extending approximately 10 kilometers south from the gravel road between Timmins and Wawaitin Falls. This unimproved bush road runs along an esker ridge on the east side of the Grassy River. It provides suitable access for four-wheel drive vehicles but it is not maintained during winter months.

The general area is a well-wooded sand and boulder till plain, ground moraine and esker complex occasionally with swampy, kettled and ridged sections that form low to moderate relief. The east bank of the Grassy River, which occurs along both the northeast and southwest boundaries of the property, is marked by a sharp rise of up to 30 meters. Relief of this magnitude,although more localized, is present in the area of Latimer Lake. While thick glacial sand deposits exist in the general area they are localized mainly to the north of the claim group. Overburden, while extensive in places, is of shallow to moderate depth, with a reasonably good exposure of bedrock on the claims.

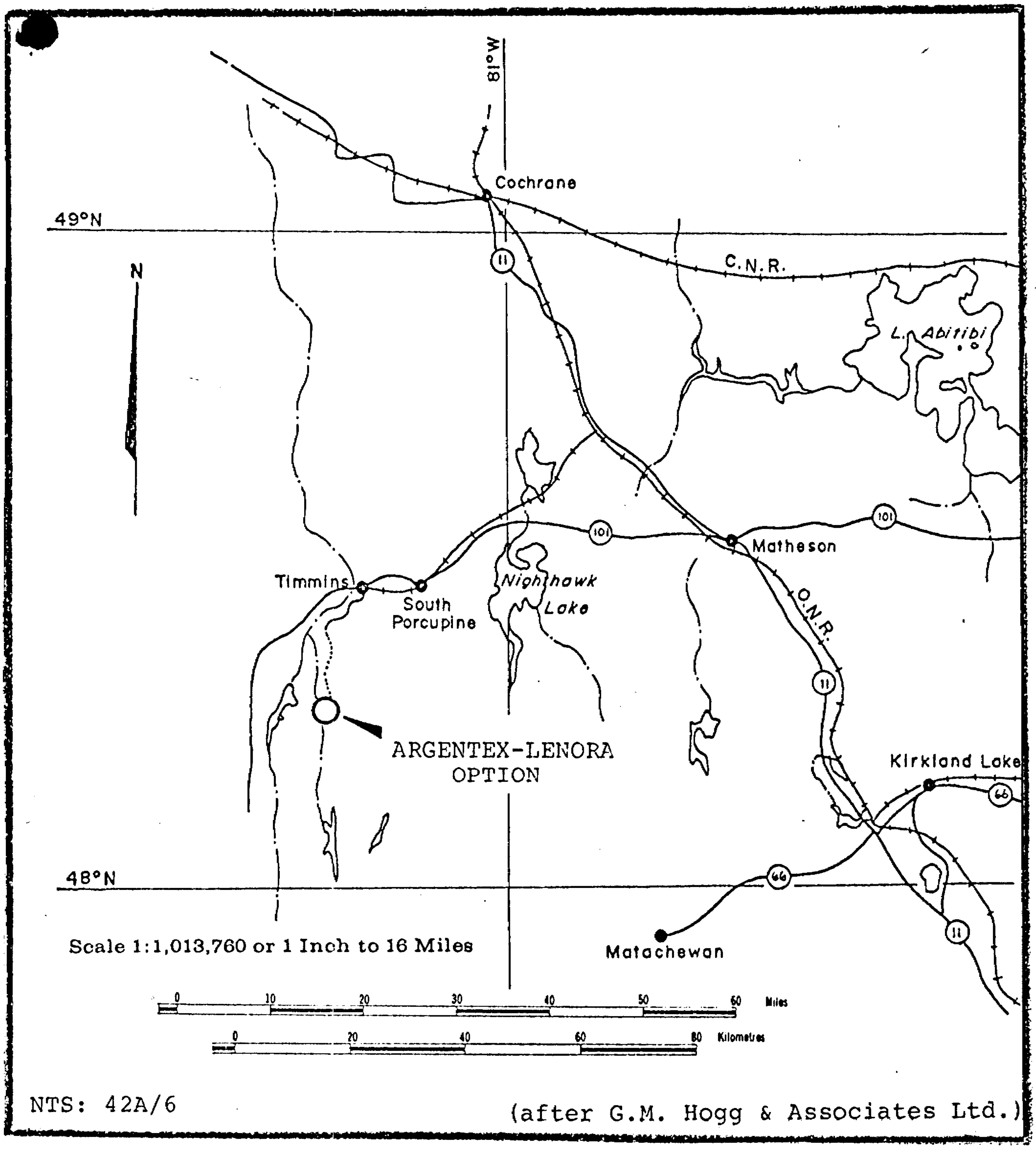

FIGURE 2

LOCATION MAP

ARGENTEX-LENORA OPTION PROPERTY

PRICE AND FRIPP TOWNSHIPS PORCUPINE MINING DIVISION

TIMMINS AREA, ONTARIO

An Ontario Hydro power line crosses the northern part of Price Township and infrastructure suitable to mining operations exists in Timmins. Adequate supplies of water and mine-timber are also available in the immediate vicinity of the property.

4. LAND TENURE, OWNERSHIP

This contiguous property - the Argentex-Lenora Option property - consists of 153 unpatented claims (2373 hectares). Prior to option arrangements being completed with Samim Canada Ltd. in March 1983, these claims were held as two properties consisting of 45 claims held by Argentex Resource Exploration Corporation, and 108 claims held by Lenora Explorations Ltd. All 153 claims numbered P.611261, etc...., are listed in the attached Appendix B and are shown on claim maps M-281 and M-307 enclosed with this appendix.

5. PREVIOUS WORK

As in most of the Timmins area, Price and Fripp Townships have had a history of gold and base metal prospecting dating back to the early 1900's. After the discovery of gold in the Porcupine Camp, early work, largely unrecorded, was gold related and unsuccessful.

In the 1940's further work was completed in various parts of the property. Targets again appear to be gold oriented with exploration operations typically involving magnetic surveying and drilling (Timmins files T-46, T-208, T-242). Mineralized (po,py) quartz veins and pyritic zones within iron formation units containing minor and trace amounts of chalcopyrite were noted but even drill intersections of massive and semi-massive sulphides west of the Grassy River appear to have been assayed only for gold (Goldale Mine - Stibbard property, 1946).

The results of a 1945 magnetic survey in the northern part of the current claim group (Timmins file T-242) revealed sulphide mineralization occurring within pronounced changes in strike or width of a highly magnetic iron formation unit. While two holes were recommended by Dr. N. B. Keevil no record exists of any drilling in this area. Further interest in this area was however, developed after an airborne magnetic and electromagnetic survey flown in 1966 by Canadian Aero Mineral Surveys Ltd on behalf of Acme Gas and Oil Company Ltd. (Timmins file T-1377 AFRO file 63.2118). Five airborne conductors were recommended for follow-up as massive sulphide targets interbedded with iron formation. Two of these conductors were subsequently surveyed by Crone Geophysics Ltd in 1969 (T-1377) using the VLF-EM technique and a geochemical follow-up survey recommended. Subsequent results on these conductors remains unreported.

Of the eight indicated airborne EM anomalies resulting from the 1966 Canadian Aero Survey, four anomalies are identified to be associated with an iron formation located between Katashaskepeko Lake and Latimer Lake in the southern part of Price Township. These conductive iron formations are believed to be an upper and more easterly unit, drilled by O'Leary Malartic Mines Ltd in 1964 (Timmins file T-781) and subsequently identified as a source of conductivity intermittently southwards into Fripp Township in electromagnetic surveying completed by Hollinger Consolidated Gold Mines Ltd. (T-646). Although iron formation units were clearly of interest in this earlier work the area of the iron formation hosting the most recent zinc discovery by Argentex Resources Exploration Corporation Ltd in 1981 (Timmins file T-2431) was not covered by this Canadian Aero survey.

Nipiron Mines Ltd completed extensive geophysical and geological work on a conventional 400 foot grid during 1965 in an area north from Quartz Lake to within the southwesternmost claims of the current property. Results of these magnetic and electromagnetic surveys were non anomalous leading to the conclusion that no significant concentration of mineralization was present in the area (T-1026).

However, interesting copper values and reported gold assays obtained from the area immediately to the north and west of Latimer Lake attracted significant attention in the 1950's and 1960's. Limited drilling programs completed by Consolidated Tungsten Mines Ltd on the Ursula Dwyer property (T-612) in 1956 and drilling by McIntyre Porcupine Mines Ltd in 1957 (AFRO file No. DDH-12) in an area of known copper showings (pyritic and quartz rich zones) was followed by a sizeable self-potential survey and drilling by O'Leary Malartic Mines Ltd in 1964 (T-781). Several strong anomalies were indicated from the SP results, some of which parallelled known copper bearing trends, however, the six hole drilling program reported by O'Leary Malartic does not appear to have tested these anomalies, instead testing features and perhaps an area of reported high gold values from one to two kilometers north of the Latimer Lake showings. This drilling intersected tuff, breccia, pink-granite and syenite without iron formation units. Drilling by others in 1956, 1957 and 1962, however, appears to have tested most known copper showings in the Latimer Lake area with up to 12 holes put down over a distance of 1.2 kilometers immediately northwest from Latimer Lake during this time. Of note however, is the inter section of galena, sphalerite and a silver bearing mineral from 981 feet to 984 feet in the second hole of Consolidated Tungsten's 1956 drilling program. Unrecognized at the time this interval appears to have remained unassayed.

During 1981 Mr. Harris Hansen prospected in the area of this previous drilling locating significant mineralized float and and occurrence of mineralized iron formation. Blasting, stripping and backhoe trenching has revealed high grade stringers of sphalerite and galena in part of the iron formation unit with significant pyrite and pyrrhotite. Additional magnetic and VLF-EM surveys were also completed during 1981.

Current recognition of the iron formation as a host to base metal mineralization in this area has resulted in substantial land assembly by Northgate Exploration Limited and others to the southeast "along-strike" from the Argentex-Lenora property.

6. GEOLOGY

The survey area is underlain by a northwest trending sequence of Archean metavolvanic and metasedimentary rocks which have been intruded by trondhjemitic, granodioritic and granitic rocks. These intrusives form batholiths to the northeast and southwest of the volcanic belt.

Mapping by Pyke (1982) has identified, within these rocks, the division between what he termed the Lower Supergroup and Upper Supergroup lithostratigraphic units (see Figure 3). He notes that this division "marks a major change in volcanism and is the single most important stratigraphic marker in the area".

On the property rocks of the upper part of the Lower Supergroup include abundant iron formation, both oxide and sulphide facies,and calc-alkalic rhyolitic and dacitic tuff and lapilli tuff pyroclastics. Rocks identified to be the base of the overlying Supergroup are represented by various amphibolitic gneisses, interpreted to be mafic flows and pyroclastics,associated with thoeliitic volcanism and ultramafic units inferred to represent epizonal intrusions or flows during the komatiitic phase of volcanism. Within the volcanics,diabase and granite exist as late stage, generally smaller, intrusive masses.

Structurally, this sequence of metavolcanic and metasedimentary rocks has been disrupted by a series of north trending faults, notably parallel to the Grassy River and through Katoshaskepeko Lake. The westward terminus of a major easterly plunging synclinorium occurs at the Kenogamissi Batholith immediately west of the property (Pyke, 1982). The only evidence of folding is on a local scale as tight drag-folds and buckle-folds within iron formation.

Published geology maps for Price and Fripp townships include ODM Geological Compilation Map No. 2205 (scale 1" = 4 miles); ODM Preliminary Map P. 941 (1974; scale 1" = 1 mile) and OGS Synoptic Series Map 2455 (1982; scale 1:50,000).

Within the lower part of the Upper Supergroup copper-nickel sulphide mineralization has been reported associated with ultrabasic material. Copper sulphides have also been located associated with pyrite in siliceous rocks south of Katoshaskepeko Lake while considerable pyrite is associated with the several magnetite-rich iron formation units. The presence of copper, lead and zinc mineralization within these iron formation units (Hansen and Kasner discovery 1981) may have significant regional economic implications, as Pyke (1982) indicates that "south of the Destor-Porcupine Fault, iron formations seems to occupy the same stratigraphic position as the Cu-Zn deposits north of the fault" (see Figure 3), including the Kidd Creek Mine, and the deposits in the Kamiskotia area all within the upper formation of the Lower Supergroup.

Pyke, D.R., 1982 Geology of the Timmins Area, District of Cochrane, Ontario Geological Survey Report 219, P. 1-141

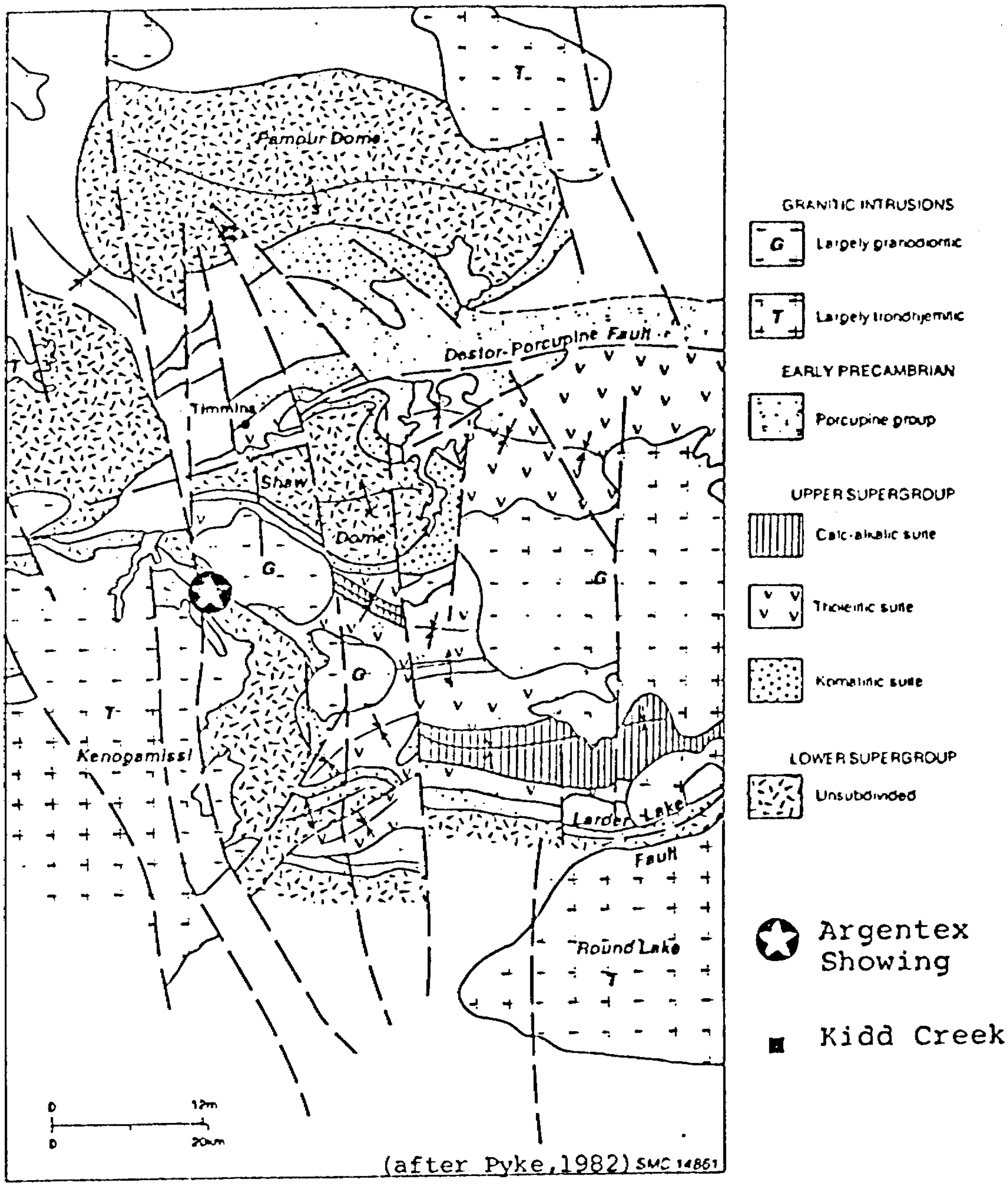

Figure 3: Regional Stratigraphy of the Timmins-Matachewan Area

7. AIRBORNE GEOPHYSICAL SURVEY

The present survey was flown to establish the geophysical "signature" of the known showing area and to provide further data for both direct targeting criteria and as indirect mapping aids within overburden covered areas.

A very close nominal line spacing,requiring precise flying procedures and accurate navigational control,was believed justified to permit quick location of previously undetected conductors and relate these to sources within this complex structural and lithostratigraphic geologic terrain. The Aerodat three frequency airborne system was used because of its flexibility and manouverability under complex topographic and overburden conditions. Target selection criteria and ground follow-up activities also required a multi-sensor airborne technique capable of improved definition of conductors and high resolution of magnetic anomalies.

The flight lines, nominally spaced at 200 meters, were placed into two blocks of flying oriented in a direction east of north to optimize definition of stratabound conductive zones and iron formation units as mapped from outcrop. Consequently, flying was undertaken using headings of 025° azimuth and 075° azimuth for the north and south blocks respectively.

Details of aircraft equipment and personnel, data compilation, presentation and generalized interpretive considerations, including a list of all anomalies identified during survey form Appendix "C" of this report. These details have been extracted from a report prepared and submitted to Samim Canada Ltd by Mr. R. L. Scott Hogg, Aerodat Limited.

8. SURVEY RESULTS AND INTERPRETATION

All results are presented as symbols, profiles or contours, on a rectified photomosaic base map of the survey area at a scale of 1:10,000. Separate presentations of the response received from each onboard sensor have been prepared and are included at the end of this report as maps 1 thru 6.

The interpretation scheme employed in establishing direct target areas required the use of a multiple data screening approach involving all three data sets as overlays. These targets are identified as numbered zones on map 1 - Airborne Electromagnetic Survey Interpretation Map.

Use of these data as indirect mapping aids involved independent analysis of each data set and correlation with prior mapping at several scales.

The exploration concept involved with these interpretations is based on syngenetic principles of ore formation within iron formation units. Such iron formations when associated with zinc-rich deposits in the major "gneiss belts" of the world have demonstrated internal facies relationships. Within a host iron formation, three mineralogically distinct sub-facies termed magnetite, sphalerite and pyrrhotite/pyrite can be deposited as discrete sub-basins or as overlapping and inter-fingering units. The effective use of geophysics in exploring for such stratabound zinc deposits involves correlative analysis of internal magnetic and conductive characteristics of the iron formation units. Such analysis often requires qualitative consideration of anomalies of low conductance or magnetic permeability values to establish these highly variable facies relationships within the limits of these broad but favourable stratigraphic intervals. Such qualitative "target" zones may require further definition and field evaluation prior to drilling or the use of shallow drilling techniques to establish subcrop lithologies.

8.1 MAGNETICS

The most prominent features on these maps are narrow linear magnetic highs with amplitudes generally in excess of 1000 nanoteslas above a background value for the measured total field of 59,350 nanoteslas.

In the South Block a narrow zone (100-200 meters approx.) of strong magnetic contrast extends north northwest from close to the northeast end of Foolem Lake for a distance of 5.5 kilometers. Directly correlating with mapped iron formation units this anomalous feature, varies in amplitude, strike direction and width along its length. It is interpreted as representing the various depositional and deformational details associated with this major iron formation.

Northeast of this iron formation and extending north from Katoshaskepeko Lake is a broad magnetic anomaly generally defined by the 60,000 nanotesla contour. This area is interpreted to be underlain by an ultramafic body of unknown origin although previous mapping indicates amphibolitized volanics present. A narrow north trending linear within this broad zone is tentatively inferred to be a more localized iron formation which has been fault terminated at the north end of Katoshaskepeko Lake by a west northwest trending fault. This fault also appears to alter the strike of the major iron formation unit suggesting some structural deformation and displacement may have occurred in this area.

Centred 700 meters southwest of Latimer Lake the iron formation which hosts the Hansen zinc showing is clearly defined over a strike lenght of approximately 3.0 kilometers. Magnetic amplitudes however, do not exceed 60,000 nanoteslas within this anomaly whereas ground reconnaissance traverses of this area have identified magnetitite rich horizons, over narrow widths, with amplitudes exceeding 70,000 nanoteslas. This apparent lack of resolution in the airborne results may be attributed to topographic limitations on flying operations within the immediate vicinity of this anomaly.

Numerous north trending but weakly magnetic zones have been interpreted as diabase dikes. Such features, commonly less than 100 meters in width appear to occur as a "swarm" somewhat isolated between the Grassy River fault and the Katoshaskepeko Lake fault.

Other structural features may also be identified from the magnetic results with the Grassy River fault, the Latimer Lake fault and the Katoshaskepeko Lake fault being readily identified as well defined zones of magnetic depression.

Several of the weaker magnetic anomalies appear to have offset relationships from which faulting of more limited scale is inferred to be present within the area of the South Block.

In the North Block three main magnetic zones are recognized. The southernmost anomaly is interpreted to be an iron formation unit which extends over a strike length of 3.6 kilometers. It trends northwest and may be terminated by the Grassy River fault. This anomaly exhibits a "scissors" shape approximately 2.5 kilometers along strike from the Grassy River where an east-west trending dike of olivine diabase has intruded the unit.

Centrally located within the North Block is a Prominent magnetic anomaly with peak amplitude greater than 62,000 nanoteslas. Primarily based on the limited dimensions (2.0 kilometers x 0.5 kilometers) and an east-west orientation, this anomaly has been inferred to be an intrusive gabbroic or ultramafic sill. Prior mapping has identified this zone as an iron formation and without further confirmation this remains a viable alternative interpretation. The northernmost magnetic anomaly has also been interpreted to be iron formation. Two narrow east-west trending iron formation units are inferred, with structural offset affecting continuity of these units in the vicinity of lines 2100 and 2110, near the Grassy River.

8.2 VLF-EM

Although this technique is equally sensitive to overburden sources and variable subcrop conditions as well as disseminated and massive sulphide mineralization in bedrock, it was thought to be well suited for the definition of "sulphide-rich" zones within the iron formation units in the absence of such geologic noise factors. Vertical quadrature relationships have been used whenever feasible to establish source type as indicated by Hogg (see Appendix "C").

In the South Block four major VLF-EM features are recognized:

Trending north from Katoshaskepeko Lake the fault zone mapped by Pyke (1982) is visible as a total field anomaly with values ranging from 2% to 10%. A stronger north northwesterly trending anomaly extending from Katoshaskepeko Lake to the Grassy River is associated primarily with an iron formation unit. Peak values of the total field along this trend do not exceed 20 percent, reflecting the generally limited sulphide content of this horizon. For comparison an overburden related anomaly attributable to lake bottom sediments in Latimer Lake has an associated anomalous total field value exceeding 34 percent while a small lake to the southeast of Latimer Lake has an associated total field anomaly which exceeds 20 percent, again attributable to conductive lake bottom sediment.

A prominent northwest oriented anomalous zone of low amplitude, extending northwards from the Latimer Lake anomaly obscures any response associated with the iron formation unit located in this area. Due west of Latimer Lake a small closure can be identified, however, in the vicinity of the Hansen zinc discovery. This zone has a much stronger ground VLF-EM response and it is suggested that the airborne survey lacks resolution in this area because of topographic limitations during flying.

The most significant VLF-EM anomaly encountered occurs near the southern end of the survey area. It extends in a general northwest direction, has a strike length of 4.5 kilometers, and peak total field values of 26 percent. Although complicated by probable overburden sources, shearing and other structural irregularities attributable to the Grassy River fault zone this feature is interpreted to represent a late stage olivine diabase dike approximately 250 meters wide. This anomaly remains intriguing as it does not correlate with any photo linears, topographic or glaciofluvial trends, magnetic anomalies or pronounced coaxial electromagnetic response.

In the North Block several conductors are identified with anomalies being more pronounced in the southern part of this Block.

The main iron formation unit trending northwest through this area has a corresponding VLF-EM anomaly attributed to the known pyrrhotite mineralization within this unit. However, the VLF-EM response bifurcates near the Grassy River in an area interpreted to be structurally complex. The VLF-EM pattern associated with the cross-cutting olivine diabase dike is a flanking response which is interpreted to be a fractured zone or area of more intense weathering along the northern contact of this dike. Similarly anomalous conditions 800 meters north from this latter anomaly are associated with the interpreted location of a gabbro sill. In this instance the VLF-EM anomaly appears to indicate the presence of increased amounts of sulphides along the south contact and within the enclosing rocks adjacent to the eastern end of this gabbroic unit.

In the northern part of the North Block two narrow, yet well defined, VLF-EM anomalies are separated from the anomaly trending east from Hydro Bay by a weak east-west trending anomaly interpreted to be caused by faulting.

These latter two anomalies are interpreted to represent the presence of increased sulphide mineralization near the contact with iron formation units, perhaps in a parallel sulphide-rich horizon within the enclosing amphibotic gneisses.

No other anomalies are interpreted to be attributable to sulphide occurrences in this area as the prominent anomaly along the southern boundary of the North Block is here inferred to represent an overburden related source.

8.3 COAXIAL EM-915 Hz

Ten target areas have been identified of which eight represent favourable facies areas within the iron formations and two targets reflect isolated sources within the enclosing rocks.

Generally, the conductivity range of these survey results is of moderate order. Two anomalies have a conductivity thickness parameter normally attributable to massive sulphides (anomaly 2060B-9.7 mhos; anomaly 2160 E - 9.6 mhos) while seventeen anomalies have conductivity values exceeding 3.5 mhos and are interpreted to be caused by sulphides. All other anomalies have a conductivity thickness parameter of 2.0 mhos or less which makes the line to line correlation of conductor axes doubtful. However, most of the anomalies identified on the Interpretation Map (Map 1) are distinct and in terms of strength may well be derived from disseminated and stringer sulphide zones as are present in the Hansen showing. The "showing" anomaly is a weak yet discrete three line conductor with reverse inphase character. Although numerous responses are not associated with magnetic "highs" the major electromagnetic conductors identified have coincident magnetic anomalies. These conductors are interpreted to define "sulphide-rich" zones within the iron formation units throughout the property

9. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the results of this multi-sensor airborne electromagnetic and magnetic survey have successfully provided both indirect mapping aids and direct targets for ongoing exploration.

By using the three independent data sets as exploration "screens" several probable facies relationships have been established through qualitative analysis of the internal magnetic and conductive characteristics of the iron formation units. The Magnetic and VLF-EM results have also successfully aided in more accurately identifying the true dimensions of the iron formation units present on this property. Several newly identified diabase dikes have also been identified in the South Block with the area between the Grassy River fault and the Katoshaskepeko fault shown in general to be a structurally complex zone. Lastly, as a mapping aid these results have confirmed the location of some previously mapped structures, i.e., the Grassy River fault, the Katoshaskepeko Lake fault, while providing additional data from which modifications to existing maps may be required in the area north of Katoshaskapeko Lake and west of the Grassy River. Unfortunately these results provided little additional evidence on which to locate the major batholithic intrusive contacts in this area.

Ten target areas have also been identified from these results. Of these eight targets have been interpreted to be stratigraphic intervals within iron formation suitable for the presence of stratabound zinc-rich mineralization. Two other targets occur as isolated conductors flanking the iron formation units or within the enclosing amphibolites west of the Grassy River.

Recommendations regarding drill priority for these target zones must await a more detailed review of the airborne results from within these target locales. Further systematic prospecting, soil sample geochemistry, and both ground geologic and geophysical mapping are also recommended as first stage follow-up procedures on these targets. Priority throughout this follow-up phase should be directed to targets 1, 5, 6 and 7.

Respectfully submitted,

J.A. McCance P.Eng.

REGISTERED PROFESSIONAL ENGINEER J. A. McCANCE PROVINCE OF ONTARIO

July 27th, 1983

John A. McCance, P.Eng.
Chief Geophysicist

APPENDIX A

CERTIFICATE - J.A. McCance, P.Eng.

ATTESTATION OF QUALIFICATION

I, JOHN A. McCANCE of the Borough of North York, Metropolitan Toronto, Province of Ontario do hereby certify:

1. That I am a geophysicist and reside at 113 Hendon Avenue, Willowdale, Ontario.

2. That I graduated from Queen's University at Kingston in 1970 with a degree of Bachelor of Science, Faculty of Applied Science and have completed post-graduate training at the University of Western Ontario, London.

3. That I am a member of the Association of Professional Engineers of the Province of Ontario (Mining Branch).

4. That I have been practising my profession for a period of eleven years.

5. That I am employed by Samim Canada Ltd as Chief Geophysicist.

6. That I supervised this survey program submitted by this contractor and I am familiar with all survey details.

REGISTERED PROFESSIONAL ENGINEER
J. A. McCANCE
PROVINCE OF ONTARIO

July 25th, 1983

J. A. McCance P.Eng.

APPENDIX B

MINISTRY OF NATURAL RESOURCES TECHNICAL
DATA STATEMENTS INCLUDING LIST OF CLAIMS
AND LOCATION MAPS

APPENDIX C

EXCERPTS FROM MAY 1983 REPORT BY

R.L. SCOTT HOGG, AERODAT LIMITED

REPORT ON COMBINED HELICOPTER-BORNE MAGNETIC AND ELECTROMAGNETIC SURVEY PRICE AND FRIPP TOWNSHIPS ONTARIO

for

SAMIM CANADA LTD.

by

AERODAT LIMITED

MAY 1983

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3. AIRCRAFT EQUIPMENT AND PERSONNEL

3.1 Aircraft

The helicopter used for the survey was an Aerospatial Astar 350D owned and operated by North Star Helicopters. Installation of the geophysical and ancillary equipment was carried out by Aerodat at Timmins.

3.2 Equipment

3.2.1. Electromagnetic System

The electromagnetic system was an Aerodat/ Geonics 3 frequency system. Two vertical coaxial coil pairs were operated at 915 and 4700 Hz and a horizontal coplanar coil pair at 4420 Hz. The transmitter-receiver separation was 7 meters. In-phase and quadrature signals were measured simultaneously for the 3 frequencies with a time-constant of 0.1 seconds. The electromagnetic bird was towed 30 meters below the helicopter.

3.2.2 The VLF-EM System was a Herz 2A. This instrument measures the total field and vertical quadrature component of two selected frequencies.

The sensor aligned with the flight direction is designated as "LINE", and the sensor perpendicular to the line direction as "ORTHO". The "LINE" station used was NAA, Cutler Maine, 17.8 KHz and "ORTHO" was NSS, Annapolis Maryland, 21.4 KHz.

3.2.3 Magnetometer

The magnetometer was a Geometrics G-803 proton precession type. The sensitivity of the instrument was 0.5 gamma at a 0.5 second sample rate. The sensor was towed in a bird 15 meters below the helicopter.

3.2.4 Magnetic Base Station

An IFG proton precession type magnetometer was operated at the base of operations to record diurnal variations of the earths magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.5 Radar Altimeter

A Hoffman HRA-100 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

3.2.6 Tracking Camera

A Geocam tracking camera was used to record flight path on 35 mm film. The camera was operated in strip mode and the fiducial numbers for cross reference to the analog and digital data were imprinted on the margin of the film.

3.2.7 Analog Recorder

A RMS dot-matrix recorder was used to display the data during the survey. In addition to manual and time fiducials the following data was recorded:

Channel	Input	Scale
13	altimeter (500 ft. at top of chart)	10 ft./mm
03	high freq. quadrature	2 ppm/mm
02	high freq. in-phase	2 ppm/mm
05	mid freq. quadrature	4 ppm/mm
04	mid freq. in-phase	4 ppm/mm
01	low freq. quadrature	2 ppm/mm
00	low freq. in-phase	2 ppm/mm
15	magnetometer	5 gamma/mm
14	magnetometer	2 gamma/mm
08	VLF-EM Total Field (Line)	2.5%/mm
09	VLF-EM Quadrature (Line)	2.5%/mm

Channel	Input	Scale
10	VLF-EM Total Field (Ortho)	2.5%/mm
11	VLF-EM Quadrature (Ortho)	2.5%/mm

3.2.8 Digital Recorder

A Perle DAC/NAV data system recorded the survey data on cassette magnetic tape. Information recorded was as follows:

Equipment	Interval
EM	0.1 second
VLF-EM	0.5 second
magnetometer	0.5 second
altimeter	1.0 second
fiducial (time)	1.0 second
fiducial (manual)	0.2 second
MRS III	0.2 second

3.2.9 Radar Positioning System

A Motorola Mini-Ranger (MRS III) radar positioning system was used for navigation and final flight path recovery. Distance from two established transponders is determined several times per second and a navigational computer triangulates this range-range data to determine UTM coordinate position.

3.3 Personnel

Personnel directly involved with the survey operation were as follows:

Pilot: Bert Simon

Equipment Operator/Technician: W. P. Boyko

4. DATA PRESENTATION

4.1 Base Map and Flight Path

A photomosaic constructed from rectified aerial photography was provided by Samim Ltd. It was used during the course of the survey for visual navigation and preliminary flight path recovery.

The recorded MRS III radar positioning data was used to derive the final flight track position, with an accuracy in the order of 10 meters. The flight path was plotted at 1/10,000 scale and presented on the photomosaic base. Registration was confirmed by a check with manually plotted fiducials and the general accuracy with respect to photographic detail is within about 20 meters.

4.2 Electromagnetic Profile Maps

The electromagnetic data was recorded digitally at a high sample rate of 10/second with a small time constant of 0.1 second. A two stage digital filtering process was carried out to reject major sferic events, and reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with a geological phenomenon. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise was further enhanced by the application of a low pass filter. The filter was applied digitally. It has zero phase shift which prevents any lag or peak displacement from occurring and it suppresses only variations with a wavelength less than about 0.25 seconds. This low effective time constant permits maximum profile shape resolution.

Following the filtering processes, a base level correction was made. The correction applied is a linear function of time that ensures that the corrected amplitude of the various inphase and quadrature components is zero.

when no conductive or permeable source is present. This filtered and levelled data was then presented in profile map form.

The in-phase and quadrature responses of the coaxial 915 Hz configuration were plotted with the flight path and presented on the photomosaic base.

4.3 Magnetic Contour Maps

The aeromagnetic data was corrected for diurnal variations by subtraction of the digitally recorded base station magnetic profile. No correction for regional variation was applied.

The corrected profile data was interpolated onto a regular grid at a 2.5 mm interval using a cubic spline technique. The grid provided the basis for threading the presented contours at a 10 gamma interval.

4.4 VLF-EM Contour and Profile Maps

The VLF-EM signal from NAA, Cutler Maine was compiled in map form. The mean response level of the total field signal was removed and the data was gridded and contoured at an interval of 2%.

The vertical quadrature component was presented in profile map form on the same presentation. The sign of the signal was reversed on W and SW bound lines such that the profiles reflect the profile that would have been recorded had all lines been flown on an E or NE heading. The vertical scale of the quadrature component was 1%/mm.

4.5 Electromagnetic Survey Conductor Map

The electromagnetic profile maps were used to identify those anomalies with characteristics typical of bedrock conductors. The in-phase and quadrature response amplitudes at 4700 Hz were digitally applied to a phasor diagram for the vertical half-plane model and estimates of conductance and depth were made. The values are tabulated in Appendix II and the conductance level is symbolized along the flight path.

With the aid of the profile maps, responses with similar characteristics were followed from line to line and interpreted conductor axes delineated. Some weaker, potential, but less certain bedrock conductor axes and extensions that were not included in the conductance symbolization process have been included.

Respectfully submitted,

AERODAT LIMITED.

R. L. Scott Hogg

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May 12, 1983

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APPENDIX I

GENERAL INTERPRETIVE CONSIDERATIONS

Electromagnetic

The Aerodat 3 frequency system utilizes 2 different transmitter-receiver coil geometries. The traditional coaxial coil configuration is operated at 2 widely separated frequencies and the horizontal coplanar coil pair is operated at a frequency approximately aligned with one of the coaxial frequencies.

The electromagnetic response measured by the helicopter system is a function of the "electrical" and "geometrical" properties of the conductor. The "electrical" property of a conductor is determined largely by its conductivity and its size and shape; the "geometrical" property of the response is largely a function of the conductors shape and orientation with respect to the measuring transmitter and receiver.

Electrical Considerations

For a given conductive body the measure of its conductivity or conductance is closely related to the measured phase shift between the received and transmitted electromagnetic field. A small phase shift indicates a relatively high conductance, a large phase shift lower conductance. A small phase shift results in a large in-phase to quadrature ratio and a large phase shift a low ratio. This relationship is shown quantitatively for a vertical half-plane model on the accompanying phasor diagram. Other physical models will show the same trend but different quantitative relationships.

The phasor diagram for the vertical half-plane model, as presented, is for the coaxial coil configuration with the amplitudes in ppm as measured at the response peak over the conductor. To assist the interpretation of the survey results the computer is used to identify the apparent conductance and depth at selected anomalies. The results of this calculation are presented in table form in Appendix II and the conductance and in-phase amplitude are presented in symbolized form on the map presentation.

The conductance and depth values as presented are correct only as far as the model approximates the real geological situation. The actual geological source may be of limited length, have significant dip, its conductivity and thickness may vary with depth and/or strike and adjacent bodies and overburden may have modified the response. In general the conductance estimate is less affected by these limitations than the depth estimate but both should be considered a relative rather than absolute guide to the anomalies properties.

Conductance in mhos is the reciprocal of resistance in ohms and in the case of narrow slab like bodies is the product of electrical conductivity and thickness.

Most overburden will have an indicated conductance of less than 2 mhos; however, more conductive clays may have an apparent conductance of say 2 to 4 mhos. Also in the low conductance range will be electrolytic conductors in faults and shears.

The higher ranges of conductance, greater than 4 mhos, indicate that a significant fraction of the electrical conduction is electronic rather than electrolytic in nature. Materials that conduct electronically are limited to certain metallic sulphides and to graphite. High conductance anomalies, roughly 10 mhos or greater are generally limited to sulphide or graphite bearing rocks.

Sulphide minerals with the exception of sphalerite, cinnabar and stibnite are good conductors; however, they may occur in a disseminated manner that inhibits electrical conduction through the rock mass. In this case the apparent conductance can seriously under rate the quality of the conductor in geological terms. In a similar sense the relatively non-conducting sulphide minerals noted above may be present in significant concentration in association with minor conductive sulphides, and the electromagnetic response only relate to the minor associate mineralization. Indicated conductance is also of little direct significance for the identification of gold mineralization. Although gold is highly conductive it would not be expected to exist in sufficient quantity to create a recognizable anomaly but minor accessory sulphide mineralization could provide a useful indirect indication.

In summary the estimated conductance of a conductor can provide a relatively positive identification of significant sulphide or graphite mineralization; however, a moderate to low conductance value does not rule out the possibility of significant economic mineralization.

Geometrical Considerations

Geometrical information about the geologic conductor can often be interpreted from the profile shape of the anomaly. The change in shape is primarily related to the change in inductive coupling among the transmitter, the target, and the receiver.

In the case of a thin, steeply dipping, sheet-like conductor, the coaxial coil pair will yield a near symmetric peak over the conductor. On the other hand the coplanar coil pair will pass through a null couple relationship and yield a minimum over the conductor, flanked by positive side lobes. As the dip of the conductor decreases from vertical, the coaxial anomaly shape changes only slightly, but in the case of the coplanar coil pair the side lobe on the down dip side strengthens relative to that on the up dip side.

As the thickness of the conductor increases, induced current flow across the thickness of the conductor becomes relatively significant and complete null coupling with the coplanar coils is no longer possible. As a result, the apparent minimum of the coplanar response over the conductor diminishes with increasing thickness, and in the limiting case of a fully 3 dimensional body or a horizontal layer or half-space, the minimum disappears completely.

A horizontal conducting layer such as overburden will produce a response in the coaxial and coplanar coils that is a function of altitude (and conductivity if not uniform). The profile shape will be similar in both coil configurations with an amplitude ratio (coplanar/coaxial) of about 4/1.*

In the case of a spherical conductor, the induced currents are confined to the volume of the sphere, but not relatively restricted to any arbitrary plane as in the case of a sheet-like form. The response of the coplanar coil pair directly over the sphere may be up to 8* times greater than that of the coaxial coil pair.

In summary a steeply dipping, sheet-like conductor will display a decrease in the coplanar response coincident with the peak of the coaxial response. The relative strength of this coplanar null is related inversely to the thickness of the conductor; a pronounced null indicates a relatively thin conductor. The dip of such a conductor can be infered from the relative amplitudes of the side-lobes.

Massive conductors that could be approximated by a conducting sphere will display a simple single peak profile form on both coaxial and coplanar coils, with a ratio between the coplanar to coaxial response amplitudes as high as 8.*

Overburden anomalies often produce broad poorly defined anomaly profiles. In most cases the response of the coplanar coils closely follow that of the coaxial coils with a relative amplitude ratio of 4.*

Occasionally if the edge of an overburden zone is sharply defined with some significant depth extent, an edge effect will occur in the coaxial coils. In the case of a horizontal conductive ring or ribbon, the coaxial response will consist of two peaks, one over each edge; whereas the coplanar coil will yield a single peak.

* It should be noted at this point that Aerodat's definition of the measured ppm unit is related to the primary field sensed in the receiving coil without normalization to the maximum coupled (coaxial configuration). If such normalization were applied to the Aerodat units, the amplitude of the coplanar coil pair would be halved.

Magnetics

The Total Field Magnetic Map shows contours of the total magnetic field, uncorrected for regional variation. Whether an EM anomaly with a magnetic correlation is more likely to be caused by a sulphide deposit than one without depends on the type of mineralization. An apparent coincidence between an EM and a magnetic anomaly may be caused by a conductor which is also magnetic, or by a conductor which lies in close proximity to a magnetic body. The majority of conductors which are also magnetic are sulphides containing pyrrhotite and/or magnetite. Conductive and magnetic bodies in close association can be, and often are, graphite and magnetite. It is often very difficult to distinguish between these cases. If the conductor is also magnetic, it will usually produce an EM anomaly whose general pattern resembles that of the magnetics. Depending on the magnetic permeability of the conducting body, the amplitude of the inphase EM anomaly will be weakened, and if the conductivity is also weak, the inphase EM anomaly may even be reversed in sign.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X. Y. Z. configuration to measure the total field and vertical quadrature component of the polarization ellipse.

The relatively high frequency of VLF 15-25 KHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground the depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field response is an indicator of the existence and position of a conductivity anomaly. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

The vertical quadrature component over steeply dipping sheet like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

The amplitude of the quadrature response, as opposed to shape is function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by this altered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical cross-over shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

APPENDIX II

Anomaly List

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	1010	A	0	0.7	8.5	0.0	0	40
1	1010	B	0	0.7	7.6	0.0	0	41
1	1020	A	0	0.9	4.9	0.0	0	55
1	1020	B	0	0.9	5.3	0.0	0	45
1	1030	A	0	0.1	4.1	0.0	0	45
1	1030	B	0	0.1	3.8	0.0	0	46
1	1040	A	0	0.8	6.0	0.0	0	39
1	1040	B	0	-0.8	2.8	0.0	0	31
1	1050	A	0	-0.8	5.8	0.0	0	28
1	1050	B	0	0.1	4.8	0.0	0	37
1	1060	A	0	0.1	3.2	0.0	0	38
1	1060	B	0	-0.2	4.3	0.0	0	32
1	1070	A	0	-0.9	3.9	0.0	0	29
1	1070	B	0	-0.9	2.6	0.0	0	30
1	1080	A	0	-0.2	1.2	0.0	0	37
1	1080	B	0	0.4	8.0	0.0	0	31
1	1080	C	0	1.0	10.4	0.0	0	31
1	1090	A	0	1.3	16.2	0.0	0	32
1	1090	B	0	0.9	15.2	0.0	0	30
1	1100	A	0	0.0	3.9	0.0	0	35
1	1100	B	0	0.7	5.5	0.0	0	40
1	1100	C	0	1.6	6.9	0.0	3	38
1	1110	A	0	-2.9	4.4	0.0	0	27
1	1120	A	0	3.9	6.9	0.2	20	33
1	1120	B	0	8.9	9.4	0.8	25	27
1	1130	A	0	3.6	6.2	0.2	29	27
1	1130	B	0	1.5	3.8	0.0	25	35
1	1130	C	0	1.5	8.2	0.0	0	52
1	1140	A	0	2.3	4.1	0.2	28	36
1	1150	A	0	-0.7	3.7	0.0	0	41

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	1150	B	0	1.2	5.2	0.0	19	26
1	1160	A	0	1.0	10.6	0.0	0	38
1	1160	B	0	0.3	10.4	0.0	0	40
1	1160	C	1	14.5	6.0	3.7	26	32
1	1160	D	0	2.4	24.8	0.0	0	33
1	1160	E	0	1.5	21.9	0.0	0	32
1	1160	F	0	-1.4	1.5	0.0	0	39
1	1170	A	0	-3.5	2.7	0.0	0	26
1	1170	B	0	0.6	10.3	0.0	0	34
1	1170	C	0	-0.8	1.8	0.0	0	33
1	1170	D	0	0.1	4.5	0.0	0	24
1	1170	E	0	-0.9	2.2	0.0	0	40
1	1170	F	0	1.3	11.8	0.0	0	39
1	1180	A	0	1.0	6.9	0.0	0	48
1	1180	B	0	5.0	5.0	0.7	26	40
1	1180	C	0	-0.1	8.9	0.0	0	37
1	1180	D	0	3.1	10.0	0.1	3	37
1	1190	A	0	-0.8	3.4	0.0	0	28
1	1190	B	0	5.0	10.1	0.2	15	30
1	1190	C	0	-0.6	7.9	0.0	0	42
1	1190	D	0	-0.9	14.4	0.0	0	36
1	1190	E	0	-1.1	14.4	0.0	0	37
1	1200	A	0	0.9	9.0	0.0	0	46
1	1200	B	0	-0.2	5.2	0.0	0	41
1	1200	C	0	-0.7	3.1	0.0	0	32
1	1200	D	0	1.5	5.8	0.0	13	32
1	1210	A	0	3.1	7.6	0.1	3	44
1	1210	B	0	-2.4	4.9	0.0	0	28
1	1210	C	0	0.3	6.4	0.0	0	26
1	1210	D	0	0.7	10.4	0.0	0	34
1	1210	E	0	1.0	17.0	0.0	0	26
1	1220	A	0	1.0	11.6	0.0	0	44
1	1220	B	0	2.6	10.5	0.0	3	33
1	1220	C	0	-2.5	9.6	0.0	0	25
1	1220	D	0	1.2	5.4	0.0	19	25
1	1220	E	0	3.4	8.9	0.1	0	54
1	1220	F	0	3.8	16.8	0.0	0	30
1	1230	A	0	5.3	18.7	0.1	0	39

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	1230	B	0	3.0	17.9	0.0	0	30
1	1230	C	0	2.8	8.6	0.1	0	48
1	1230	D	0	0.5	6.2	0.0	3	27
1	1230	E	0	0.6	8.8	0.0	0	27
1	1230	F	0	-0.3	6.2	0.0	0	28
1	1230	G	0	4.7	17.5	0.1	0	32
1	1230	H	0	-1.6	8.1	0.0	0	27
1	1240	A	0	4.7	14.8	0.1	7	27
1	1240	B	0	0.2	5.1	0.0	0	27
1	1240	C	0	3.9	9.6	0.1	0	50
1	1240	D	0	4.9	17.1	0.1	0	39
1	1250	A	0	5.0	21.9	0.0	0	35
1	1250	B	0	6.6	23.2	0.1	0	31
1	1250	C	0	4.3	21.5	0.0	0	31
1	1250	D	0	4.5	14.4	0.1	0	52
1	1250	E	0	-3.5	9.7	0.0	0	26
1	1250	F	0	5.5	16.3	0.1	9	25
1	1250	G	0	-1.6	7.0	0.0	0	24
1	1250	H	0	3.5	14.2	0.0	4	28
1	1250	J	0	3.7	17.3	0.0	0	33
1	1260	A	0	2.8	12.3	0.0	6	27
1	1260	B	0	1.3	6.9	0.0	11	28
1	1260	C	0	3.8	12.7	0.1	0	54
1	1260	D	0	4.3	15.5	0.1	0	32
1	1260	E	0	3.4	18.8	0.0	2	24
1	1270	A	0	3.6	13.6	0.0	1	33
1	1270	B	0	2.5	7.0	0.1	15	32
1	1270	C	0	-0.5	4.8	0.0	0	32
1	1270	D	0	1.8	8.4	0.0	9	29
1	1280	A	0	0.1	3.6	0.0	0	34
1	1280	B	0	4.3	9.4	0.2	2	43
1	1280	C	0	4.4	20.4	0.0	0	32
1	1280	D	0	5.3	22.3	0.0	0	30
1	1290	A	0	5.3	17.7	0.1	4	28
1	1290	B	0	5.3	15.3	0.1	0	41
1	1290	C	0	0.2	3.8	0.0	3	28
1	1290	D	0	0.5	5.8	0.0	1	31
1	1290	E	0	-2.7	15.5	0.0	0	29
1	1300	A	0	1.8	9.6	0.0	0	41

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
1	1300	B	0	-1.0	6.8	0.0	0	35
1	1300	C	0	5.9	5.0	1.0	41	26
1	1300	D	0	9.0	18.0	0.3	0	39
1	1300	E	0	8.0	25.4	0.1	0	34
1	1310	A	0	6.7	13.6	0.3	0	48
1	1310	B	0	6.2	7.5	0.6	30	26
1	1310	C	0	-2.6	6.1	0.0	0	30
1	1310	D	0	2.5	11.5	0.0	3	30
1	1320	A	0	1.2	6.0	0.0	0	42
1	1320	B	0	-0.8	4.2	0.0	0	34
1	1320	C	0	11.1	9.1	1.3	21	33
1	1320	D	0	6.9	14.5	0.3	0	41
1	1320	E	0	12.5	17.9	0.6	9	31
1	1320	F	0	7.2	11.1	0.4	19	28
1	1330	A	2	25.2	9.7	4.9	10	39
1	1330	B	0	13.5	24.7	0.4	4	30
1	1330	C	0	7.0	15.7	0.2	0	40
1	1330	D	0	2.6	11.0	0.0	7	28
1	1330	E	0	-1.1	4.8	0.0	0	35
1	1340	A	0	-1.7	2.6	0.0	0	38
1	1340	B	0	4.9	19.4	0.1	0	35
1	1340	C	0	4.2	11.6	0.1	4	36
2	2010	A	0	5.2	22.1	0.0	0	30
2	2010	B	0	4.9	23.7	0.0	0	29
2	2010	C	0	3.5	17.1	0.0	0	29
2	2010	D	0	6.0	9.1	0.4	19	31
2	2020	A	0	1.1	9.5	0.0	0	35
2	2020	B	0	1.4	10.5	0.0	4	25
2	2020	C	0	7.2	22.6	0.1	0	33
2	2020	D	0	3.0	18.7	0.0	0	26
2	2020	E	0	5.4	25.7	0.0	0	34
2	2030	A	0	3.1	15.1	0.0	0	31
2	2030	B	0	6.8	25.1	0.1	0	35
2	2030	C	0	13.9	36.9	0.3	0	27
2	2030	D	0	6.2	21.0	0.1	0	45
2	2030	E	0	1.4	8.6	0.0	4	30
2	2040	A	0	6.0	20.7	0.1	0	30

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	2040	B	0	10.0	30.2	0.2	3	24
2	2040	C	0	13.7	36.6	0.2	0	30
2	2040	D	0	21.1	51.6	0.4	0	27
2	2040	E	0	17.3	47.2	0.3	0	23
2	2050	A	0	0.9	2.7	0.0	32	33
2	2050	B	2	48.4	21.3	5.0	9	28
2	2050	C	2	55.5	19.8	6.9	5	32
2	2050	D	1	13.1	7.0	2.5	23	34
2	2050	E	0	12.5	24.9	0.4	6	27
2	2060	A	1	20.4	10.4	3.1	29	21
2	2060	B	3	81.2	24.2	9.7	12	21
2	2060	C	1	37.9	20.7	3.5	18	21
2	2060	D	0	-0.2	3.4	0.0	0	25
2	2070	A	1	32.3	19.7	2.9	11	30
2	2070	B	1	15.2	9.5	2.1	25	27
2	2080	A	0	5.9	21.5	0.1	10	19
2	2080	B	0	7.9	32.9	0.1	0	31
2	2080	C	0	7.8	8.5	0.7	26	28
2	2080	D	0	11.2	8.2	1.5	24	32
2	2080	E	2	57.0	22.8	6.0	7	29
2	2090	A	0	2.0	4.6	0.1	22	36
2	2090	B	0	1.9	8.3	0.0	8	31
2	2090	C	1	30.9	20.0	2.6	12	29
2	2090	D	0	4.8	14.1	0.1	9	27
2	2090	E	0	1.6	6.9	0.0	11	31
2	2090	F	0	1.8	7.8	0.0	7	33
2	2090	G	0	5.0	4.0	1.0	44	28
2	2100	A	0	4.1	8.4	0.2	9	39
2	2100	B	0	5.0	7.5	0.4	28	26
2	2100	C	0	5.9	8.3	0.4	28	24
2	2100	D	0	2.7	6.7	0.1	29	20
2	2100	E	0	2.7	7.6	0.1	20	26
2	2100	F	0	3.5	11.9	0.1	14	22
2	2100	G	0	1.8	10.8	0.0	8	23
2	2100	H	0	4.9	16.6	0.1	2	30
2	2100	J	1	31.2	18.7	2.9	11	30
2	2100	K	0	3.3	13.3	0.0	1	33
2	2100	M	0	2.6	17.9	0.0	0	26
2	2100	N	0	1.5	13.8	0.0	0	28

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	2110	A	0	1.7	11.1	0.0	0	30
2	2110	B	0	2.8	16.9	0.0	0	30
2	2110	C	0	-1.2	3.9	0.0	0	26
2	2110	D	0	20.0	20.2	1.2	8	32
2	2110	E	0	3.6	6.0	0.3	28	29
2	2110	F	0	1.7	6.2	0.0	16	29
2	2110	G	0	0.0	9.2	0.0	0	32
2	2110	H	0	8.3	16.0	0.3	11	28
2	2110	J	0	6.5	18.7	0.1	1	32
2	2110	K	0	2.6	5.6	0.1	27	28
2	2120	A	0	2.7	7.6	0.1	11	34
2	2120	B	0	1.8	7.1	0.0	4	38
2	2120	C	0	1.1	7.4	0.0	7	27
2	2120	D	0	10.7	11.3	0.9	22	27
2	2120	E	0	5.4	7.5	0.4	29	25
2	2120	F	0	20.2	15.9	1.7	16	29
2	2120	G	0	6.3	16.4	0.2	10	26
2	2120	H	0	3.7	10.0	0.1	15	27
2	2120	J	2	38.1	13.9	6.0	9	33
2	2130	A	0	1.2	2.2	0.1	50	29
2	2130	B	0	3.0	2.9	0.6	50	30
2	2130	C	0	1.5	11.0	0.0	0	34
2	2130	D	0	5.1	18.8	0.1	1	29
2	2130	E	2	37.9	13.0	6.5	14	28
2	2130	F	1	21.6	11.5	3.0	15	33
2	2130	G	0	8.3	6.4	1.3	33	28
2	2140	A	0	5.5	12.4	0.2	3	37
2	2140	B	0	2.9	17.7	0.0	0	29
2	2140	C	0	52.2	48.5	1.9	4	25
2	2140	D	1	22.3	10.3	3.7	25	24
2	2140	E	0	8.7	29.2	0.1	2	25
2	2140	F	0	4.9	17.9	0.1	11	20
2	2140	G	0	2.9	12.6	0.0	17	16
2	2140	H	0	4.2	9.8	0.2	15	29
2	2140	J	2	39.3	15.8	5.3	18	23
2	2140	K	0	1.3	11.2	0.0	0	32
2	2150	A	0	10.5	9.1	1.2	23	31
2	2150	B	1	18.5	7.8	3.9	16	37
2	2150	C	2	47.5	21.8	4.7	1	36
2	2150	D	0	2.8	6.3	0.1	12	39

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

FLIGHT	LINE	ANOMALY	CATEGORY	FREQUENCY 4700 INPHASE	QUAD.	CONDUCTOR CTP MHOS	DEPTH MTRS	BIRD HEIGHT MTRS
2	2150	E	0	3.4	6.9	0.2	23	29
2	2160	A	0	4.2	9.9	0.1	10	34
2	2160	B	0	3.7	11.2	0.1	10	28
2	2160	C	1	19.5	12.1	2.4	19	29
2	2160	D	2	32.6	11.3	6.1	21	24
2	2160	E	3	54.2	14.9	9.6	6	33
2	2160	F	0	9.6	13.2	0.6	14	31
2	2160	G	0	22.6	18.5	1.7	9	33
2	2170	A	0	14.5	16.6	0.9	15	27
2	2170	B	2	33.1	12.0	5.8	11	33
2	2170	C	0	5.1	5.1	0.7	36	29
2	2170	D	1	44.1	25.4	3.4	6	31
2	2170	E	0	17.0	23.3	0.7	3	33
2	2170	F	0	7.3	21.7	0.1	0	35
2	2180	A	0	4.2	17.2	0.0	0	35
2	2180	B	1	18.4	10.9	2.5	16	34
2	2180	C	1	41.7	24.0	3.4	9	28
2	2180	D	0	4.9	10.4	0.2	13	31
2	2190	A	0	5.2	10.9	0.2	19	25
2	2190	B	0	9.2	17.4	0.3	7	31
2	2190	C	1	20.8	12.8	2.4	16	32
2	2200	A	0	17.6	23.3	0.8	11	26
2	2200	B	0	14.3	16.1	0.9	13	30
2	2210	A	0	13.1	16.0	0.8	11	32
2	2210	B	0	7.1	16.4	0.2	0	37
2	2210	C	0	7.2	13.3	0.3	6	36
2	2210	D	0	3.9	10.2	0.1	6	36
2	2210	E	0	3.5	6.6	0.2	18	35

Estimated depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or overburden effects.

M A P S

42A06SW0066 2.5718 FRIPP

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152,153,154

2.5718

1983 08 02

Mr. William L. Good
Mining Recorder
Ministry of Natural Resources
60 Wilson Avenue
Timmins, Ontario
P4N 2S7

Dear Sir:

We have received reports and maps for an Airborne Geophysical (Electromagnetic and Magnetometer) survey submitted on Mining Claims P 611261 et al in the Townships of Price and Fripp.

This material will be examined and assessed and a statement of assessment work credits will be issued.

Yours very truly,

E.F. Anderson
Director
Land Management Branch

Whitney Block, Room 6450
Queen's Park
Toronto, Ontario
M7A 1W3
Phone:(416)965-1380

A. Barr:mc

cc: Samim Canada Ltd
Suite 2116
130 Adelaide Street West
Toronto, Ontario
M5H 3P5
Attention: Mr. John A. McCance

~~APPENDIX~~ APPENDIX B

File MAGNETICS

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Airborne Magnetic

Township or Area Price & Fripp Townships

Claim Holder(s) Samim Canada Ltd., 130 Adelaide St.W., Suite 2116, Toronto, Ontario M5H 3P5

Survey Company Aerodat Limited

Author of Report J.A. McCance, P.Eng.

Address of Author as above

Covering Dates of Survey 30/03/83 to 25/07/83 (linecutting to office)

Total Miles of Line Cut 207 line kilometers flown

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer 21.36 Electromagnetic ______ Radiometric ______ (enter days per claim)

DATE: 25 July 1983 SIGNATURE: J.A. McCance P.Eng. Author of Report or Agent

OFFICE USE ONLY

Res. Geol. ______ Qualifications 2.1965

Previous Surveys

File No.	Type	Date	Claim Holder

MINING CLAIMS TRAVERSED
List numerically

P.611261 etc.
(prefix) (number)
(see attached list)

If space insufficient, attach list

TOTAL CLAIMS 153

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations ____________________ Number of Readings ____________________

Station interval ____________________ Line spacing ____________________

Profile scale ____________________

Contour interval ____________________

MAGNETIC

Instrument ____________________

Accuracy – Scale constant ____________________

Diurnal correction method ____________________

Base Station check-in interval (hours) ____________________

Base Station location and value ____________________

____

ELECTROMAGNETIC

Instrument ____________________

Coil configuration ____________________

Coil separation ____________________

Accuracy ____________________

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency ____________________
(specify V.L.F. station)

Parameters measured ____________________

GRAVITY

Instrument ____________________

Scale constant ____________________

Corrections made ____________________

____

Base station value and location ____________________

____

Elevation accuracy ____________________

INDUCED POLARIZATION / RESISTIVITY

Instrument ____________________

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time ____________________ Frequency ____________________

– Off time ____________________ Range ____________________

– Delay time ____________________

– Integration time ____________________

Power ____________________

Electrode array ____________________

Electrode spacing ____________________

Type of electrode ____________________

Airborne Magnetics
coverage over claim block

airborne data Block AA-200	=	80.87 km
airborne data Block B-200	=	50.57 km
Total AEM cover over claims		131.44 km

Total number of claims in Block covered by airborne surveys:

153 claims

Calculation:

Total credits per sensor (40 m days/mile of coverage)

$(131.44 \div 1.609) \times 40 = 3267.62$ m days

Total credits per sensor per claim (assuming uniform distribution of credit throughout claim group)

$\frac{3267.62}{153}$ $\frac{\text{m days/sensor}}{\text{claims}}$ = 21.36 m days/claim sensor

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MINING CLAIMS

TOTAL NUMBER: 153 claims

NTS: 42 A/6

PROJECT NAME: Argentex-Lenora

TOWNSHIPS: Price
Fripp

MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER
P.611261	P.611309	P.618914	P.622817	P.622880
611262	611310	618915	622818	622881
611263	611311	618916	622819	622882
611264	611312	618917	622820	622883
611265	611313	618918	622821	622884
611266	611314	618919	622822	622885
611267	611315	618920	622823	622912
611268	611316	618921	622824	622913
611269	611317	618922	622825	622914
611270	611318	618923	622826	622915
611271	611319	618924	622827	622916
611272	611320	618925	622828	622917
611273	611321	618926	622829	622918
611274	611322	622590	622862	622919
611275	611323	622591	622863	622920
611276	611324	622592	622864	622921
611277	611325	622593	622865	622922
611278	611326	622594	622866	622923
611279	611327	622595	622867	624012
611280	611328	622596	622868	624013
611281	611329	622597	622869	624014
611282	611330	622598	622870	624015
611283	611331	622599	622871	624016
611284	618906	622600	622872	624017
611285	618907	622601	622873	624018
611286	618908	622602	622874	624019
611287	618909	622812	622875	624020
611288	618910	622813	622876	624021
611289	618911	622814	622877	624022
611290	618912	622815	622878	
611308	618913	622816	622879	

SELF POTENTIAL

Instrument ______ Range ______

Survey Method ______

______

Corrections made ______

______

RADIOMETRIC

Instrument ______

Values measured ______

Energy windows (levels) ______

Height of instrument ______ Background Count ______

Size of detector ______

Overburden ______

(type, depth - include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey ______

Instrument ______

Accuracy ______

Parameters measured ______

______

Additional information (for understanding results) ______

______

______

AIRBORNE SURVEYS

Type of survey(s) Magnetics (helicopter-borne)

Instrument(s) Geometrics G-803 Magnetometer

(specify for each type of survey)

Accuracy Magnetometer sensitivity 0.5 gammas at a 0.5 second sample rate contour accuracy 10 gammas

(specify for each type of survey)

Aircraft used Aerospatial A-Star 350D helicopter owned and operated by North Star Helicopters

Sensor altitude Magnetometer 15 meters below aircraft

Navigation and flight path recovery method NAV: visual + Motorola Mini Ranger radar positioning F.P.R. Radar position (accuracy 10 meters) with standard tracking camera data recovery using rectified aerial photography (accuracy 20 meters)

Aircraft altitude nominally 60 meters A.G.L. Line Spacing 200 meters (nominally)

Miles flown over total area 207 line kilometers Over claims only 131.44 kilometers

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken ______

______

______

Total Number of Samples ______

Type of Sample ______
(Nature of Material)

Average Sample Weight ______

Method of Collection ______

______

Soil Horizon Sampled ______

Horizon Development ______

Sample Depth ______

Terrain ______

______

Drainage Development ______

Estimated Range of Overburden Thickness ______

______

______

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis ______

______

______

______

General ______

______

______

______

______

______

______

______

______

______

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others ______

Field Analysis (______ tests)

Extraction Method ______

Analytical Method ______

Reagents Used ______

Field Laboratory Analysis

No. (______ tests)

Extraction Method ______

Analytical Method ______

Reagents Used ______

Commercial Laboratory (______ tests)

Name of Laboratory ______

Extraction Method ______

Analytical Method ______

Reagents Used ______

General ______

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APPENDIX B

File VLF

Ministry of Natural Resources

Ontario

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Helicopter VLF-EM

Township or Area Price and Fripp Townships

Claim Holder(s) Samim Canada Ltd.

130 Adelaide St.W., Suite 2116, Tor.
M5H 3P5

Survey Company Aerodat Limited

Author of Report J.A. McCance, P.Eng.

Address of Author as above

Covering Dates of Survey 30/03/83 to 25/07/83 (linecutting to office)

Total Miles of Line Cut 207 line kilometers flown

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
--Electromagnetic	
--Magnetometer	
--Radiometric	
--Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ______ Electromagnetic 21.36 Radiometric ______
(enter days per claim)

DATE: 25 July 1983 SIGNATURE: J.A. McCance P.Eng
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

P.611261 etc.
(prefix) (number)
(see attached list)

If space insufficient, attach list

TOTAL CLAIMS 153

OFFICE USE ONLY

Res. Geol. ______ Qualifications ______

Previous Surveys

File No.	Type	Date	Claim Holder

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations ________________ Number of Readings ________________

Station interval ________________ Line spacing ________________

Profile scale ________________

Contour interval ________________

MAGNETIC

Instrument ________________

Accuracy – Scale constant ________________

Diurnal correction method ________________

Base Station check-in interval (hours) ________________

Base Station location and value ________________

ELECTROMAGNETIC

Instrument ________________

Coil configuration ________________

Coil separation ________________

Accuracy ________________

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency ________________ (specify V.L.F. station)

Parameters measured ________________

GRAVITY

Instrument ________________

Scale constant ________________

Corrections made ________________

Base station value and location ________________

Elevation accuracy ________________

INDUCED POLARIZATION
RESISTIVITY

Instrument ________________

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time ________________ Frequency ________________

– Off time ________________ Range ________________

– Delay time ________________

– Integration time ________________

Power ________________

Electrode array ________________

Electrode spacing ________________

Type of electrode ________________

AEM coverage over claim block

airborne data Block AA-200	=	80.87 km
airborne data Block B-200	=	50.57 km
Total AEM cover over claims		131.44 km

Total number of claims in Block covered by airborne surveys:

153 claims

Calculation:

Total credits per sensor (40 m days/mile of coverage)

$(131.44 \div 1.609) \times 40 = 3267.62$ m days

Total credits per sensor per claim (assuming uniform distribution of credit throughout claim group)

$\frac{3267.62}{153}$ m days/sensor claims = 21.36 m days/claim sensor

JAM

MINING CLAIMS

TOTAL NUMBER: 153 claims

NTS: 42 A/6

PROJECT NAME: Argentex-Lenora

TOWNSHIPS: Price
Fripp

MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER
P.611261	P.611309	P.618914	P.622817	P.622880
611262	611310	618915	622818	622881
611263	611311	618916	622819	622882
611264	611312	618917	622820	622883
611265	611313	618918	622821	622884
611266	611314	618919	622822	622885
611267	611315	618920	622823	622912
611268	611316	618921	622824	622913
611269	611317	618922	622825	622914
611270	611318	618923	622826	622915
611271	611319	618924	622827	622916
611272	611320	618925	622828	622917
611273	611321	618926	622829	622918
611274	611322	622590	622862	622919
611275	611323	622591	622863	622920
611276	611324	622592	622864	622921
611277	611325	622593	622865	622922
611278	611326	622594	622866	622923
611279	611327	622595	622867	624012
611280	611328	622596	622868	624013
611281	611329	622597	622869	624014
611282	611330	622598	622870	624015
611283	611331	622599	622871	624016
611284	618906	622600	622872	624017
611285	618907	622601	622873	624018
611286	618908	622602	622874	624019
611287	618909	622812	622875	624020
611288	618910	622813	622876	624021
611289	618911	622814	622877	624022
611290	618912	622815	622878	
611308	618913	622816	622879	

SELF POTENTIAL

Instrument ______ Range ______

Survey Method ______

Corrections made ______

RADIOMETRIC

Instrument ______

Values measured ______

Energy windows (levels) ______

Height of instrument ______ Background Count ______

Size of detector ______

Overburden ______
(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey ______

Instrument ______

Accuracy ______

Parameters measured ______

Additional information (for understanding results) ______

AIRBORNE SURVEYS

Type of survey(s) Helicopterborne VLF-EM

Instrument(s) Herz Industries Ltd. Totem 2A VLF-EM instrument
(specify for each type of survey)

Accuracy Total field signal: 2% contours Vertical quadrature component: 1%
(specify for each type of survey)

Aircraft used Aerospatial A-Star 350D Helicopter owned/operated by North Star Helicopters

Sensor altitude At nominal aircraft altitude

Navigation and flight path recovery method NAV: visual + Motorola Mini Ranger radar positioning F.P.R. Radar position (accuracy 10 metres) with standard tracking camera data recovery using rectified aerial photography (accuracy 20 metres)

Aircraft altitude nominally 60 metres A.G.L. Line Spacing 200 metres

Miles flown over total area 207 line kilometers Over claims only 131.44 kilometers

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken ______________________________

____

____

Total Number of Samples ______________________________

Type of Sample ______________________________
(Nature of Material)

Average Sample Weight ______________________________

Method of Collection ______________________________

____

Soil Horizon Sampled ______________________________

Horizon Development ______________________________

Sample Depth ______________________________

Terrain ______________________________

____

Drainage Development ______________________________

Estimated Range of Overburden Thickness ______________________________

____

____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis ______________________________

____

____

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General ______________________________

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ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others ______________________________

Field Analysis (______________________________ tests)

Extraction Method ______________________________

Analytical Method ______________________________

Reagents Used ______________________________

Field Laboratory Analysis

No. (______________________________ tests)

Extraction Method ______________________________

Analytical Method ______________________________

Reagents Used ______________________________

Commercial Laboratory (______________________________ tests)

Name of Laboratory ______________________________

Extraction Method ______________________________

Analytical Method ______________________________

Reagents Used ______________________________

General ______________________________

____

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APPENDIX B
File EM

Ontario

Ministry of Natural Resources

GEOPHYSICAL – GEOLOGICAL – GEOCHEMICAL TECHNICAL DATA STATEMENT

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Helicopter-borne coaxial EM

Township or Area Price & Fripp Townships

Claim Holder(s) Samim Canada Ltd., 130 Adelaide St.W., Suite 2116, Toronto, Ontario M5H 3P5

Survey Company Aerodat Limited

Author of Report J.A. McCance, P.Eng.

Address of Author as above

Covering Dates of Survey 30/03/83 to 25/07/83 (linecutting to office)

Total Miles of Line Cut 207 line kilometres flown

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	
–Radiometric	
–Other	
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ______ Electromagnetic 21.36 Radiometric ______
(enter days per claim)

DATE: 25 July 1983 SIGNATURE: J.A. McCance P.Eng.
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

P.611261 etc.
(prefix) (number)
(see attached list)

If space insufficient, attach list

TOTAL CLAIMS 153

OFFICE USE ONLY

Res. Geol. ______ Qualifications ______

Previous Surveys

File No.	Type	Date	Claim Holder

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS -- If more than one survey, specify data for each type of survey

Number of Stations ____________________ Number of Readings ____________________

Station interval ____________________ Line spacing ____________________

Profile scale ____________________

Contour interval ____________________

MAGNETIC

Instrument ____________________

Accuracy – Scale constant ____________________

Diurnal correction method ____________________

Base Station check-in interval (hours) ____________________

Base Station location and value ____________________

____

ELECTROMAGNETIC

Instrument ____________________

Coil configuration ____________________

Coil separation ____________________

Accuracy ____________________

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency ____________________ (specify V.L.F. station)

Parameters measured ____________________

GRAVITY

Instrument ____________________

Scale constant ____________________

Corrections made ____________________

____

Base station value and location ____________________

____

Elevation accuracy ____________________

INDUCED POLARIZATION RESISTIVITY

Instrument ____________________

Method ☐ Time Domain ☐ Frequency Domain

Parameters – On time ____________________ Frequency ____________________

– Off time ____________________ Range ____________________

– Delay time ____________________

– Integration time ____________________

Power ____________________

Electrode array ____________________

Electrode spacing ____________________

Type of electrode ____________________

AEM coverage over claim block

airborne data Block AA-200	=	80.87 km
airborne data Block B-200	=	50.57 km
Total AEM cover over claims		131.44 km

Total number of claims in Block covered by airborne surveys:

153 claims

<u>Calculation:</u>

Total credits per sensor (40 m days/mile of coverage)

$$(131.44 \div 1.609) \times 40 = 3267.62 \text{ m days}$$

Total credits per sensor per claim (assuming uniform distribution of credit throughout claim group)

$$\frac{3267.62 \text{ m days/sensor}}{153 \text{ claims}} = 21.36 \text{ m days/claim sensor}$$

JAm'C

MINING CLAIMS

TOTAL NUMBER: 153 claims

NTS: 42 A/6

PROJECT NAME: Argentex-Lenora

TOWNSHIPS: Price
Fripp

MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBE
P.611261	P.611309	P.618914	P.622817	P.622880
611262	611310	618915	622818	622881
611263	611311	618916	622819	622882
611264	611312	618917	622820	622883
611265	611313	618918	622821	622884
611266	611314	618919	622822	622885
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611269	611317	618922	622825	622914
611270	611318	618923	622826	622915
611271	611319	618924	622827	622916
611272	611320	618925	622828	622917
611273	611321	618926	622829	622918
611274	611322	622590	622862	622919
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611276	611324	622592	622864	622921
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611282	611330	622598	622870	624015
611283	611331	622599	622871	624016
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611288	618910	622813	622876	624021
611289	618911	622814	622877	624022
611290	618912	622815	622878	
611308	618913	622816	622879	

SELF POTENTIAL

Instrument ____________ Range ____________

Survey Method ____________

Corrections made ____________

RADIOMETRIC

Instrument ____________

Values measured ____________

Energy windows (levels) ____________

Height of instrument ____________ Background Count ____________

Size of detector ____________

Overburden ____________
(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey ____________

Instrument ____________

Accuracy ____________

Parameters measured ____________

Additional information (for understanding results) ____________

AIRBORNE SURVEYS

Type of survey(s) Helicopter-borne EM (915 Hz, coaxial system)

Instrument(s) Aerodat/Geonics 3 frequency EM system
(specify for each type of survey)

Accuracy Analog record: 2ppm/mm
Digital record: time constant 0.1 sec. Filtered profile map: 1 ppm resolution
(specify for each type of survey)

Aircraft used Aerospatial A-Star 350D helicopter owned/operated by North Star Helicopters

Sensor altitude 30 meters below aircraft

Navigation and flight path recovery method NAV:visual + Motorola Mini Ranger radar positioning F.P.R. Radar position(accuracy 10 meters)with standard tracking camera data recovery using rectified aerial photos (20 meters)

Aircraft altitude nominally 60 meters A.G.L. Line Spacing 200 meters (nominal)

Miles flown over total area 207 line kilometers Over claims only 131.44 kilometers

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken ______________________________

____

____

Total Number of Samples ______________________________

Type of Sample ______________________________
(Nature of Material)

Average Sample Weight ______________________________

Method of Collection ______________________________

____

Soil Horizon Sampled ______________________________

Horizon Development ______________________________

Sample Depth ______________________________

Terrain ______________________________

____

Drainage Development ______________________________

Estimated Range of Overburden Thickness ______________________________

____

____

SAMPLE PREPARATION
(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis ______________________________

____

____

____

General ______________________________

____

____

____

____

____

____

____

____

____

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others ______________________________

Field Analysis (______________________________ tests)

Extraction Method ______________________________

Analytical Method ______________________________

Reagents Used ______________________________

Field Laboratory Analysis

No. (______________________________ tests)

Extraction Method ______________________________

Analytical Method ______________________________

Reagents Used ______________________________

Commercial Laboratory (______________________________ tests)

Name of Laboratory ______________________________

Extraction Method ______________________________

Analytical Method ______________________________

Reagents Used ______________________________

General ______________________________

____

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____

____

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____

Samim Canada Ltd.

July 27th, 1983

Ontario Ministry of Natural Resources,
Mining Lands Branch - Sixth Floor,
Whitney Block, Queen's Park,
Toronto, Ontario,
M7A 1X1

Attn: Mr. F. W. Matthews

Dear Mr. Matthews:

Re: Submission of multi-sensor airborne data for assessment work credits on 153 claims in the Porcupine Mining Division: P 611261, etc.

Enclosed please find two copies of our report on the results of a recent multi-sensor airborne geophysical survey completed over 153 claims in Price and Fripp Townships, Procupine Mining Division. This work was completed under contract by Aerodat Limited.

We are hereby respectfully requesting that this submitted work be recorded as an amount in excess of 64 days assessment work on each of these 153 claims.

Yours truly,

John McCance

John A. McCance
Chief Geophysicist

RECEIVED
JUL 28 1983
MINING LANDS SECTION

JAM/ams
Encl.

cc: D. S. Kerby

130 Adelaide St. W.
Suite 2116, P.O. Box 7
Toronto, Canada M5H 3P5

Telephone - (416) 863-0168
Telex 06-217829

Price & Fripp Twps.

July 29th
P-611261

Ministry of Natural Resources
Ontario

Report of Work
(Geophysical, Geological, Geochemical and Expenditures)

#152

2.5718

The Mining Act

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns. Do not use shaded areas below.

Type of Survey(s): Geophysical-Airborne electromagnetic-vertical-coaxial coil system

Township or Area: Price and Fripp Twps.

Claim Holder(s): Samim Canada Ltd.

Prospector's Licence No.: T-1193

Address: Suite 2116, 130 Adelaide St. W., Toronto, Ontario M5H 3P5

Survey Company: Aerodat Limited

Date of Survey (from & to): 30 03 83 (Day Mo. Yr.) – 06 05 83 (Day Mo. Yr.)

Total Miles of line Cut: N/A

Name and Address of Author (of Geo-Technical report): J.A. McCance, c/o Samim Canada Ltd. (see above)

Credits Requested per Each Claim in Columns at right

		Days per Claim
Special Provisions: For first survey: Enter 40 days. (This includes line cutting). For each additional survey: using the same grid: Enter 20 days (for each)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Man Days: Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	
Airborne Credits. Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic 930 Hz vertical coaxial coil	21.36
	Magnetometer	
	Radiometric	

(see calculations attached)

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.	Mining Claim Prefix	Mining Claim Number	Expend. Days Cr.
	See list attached				

RECEIVED
JUN 1 1983
MINING LANDS SECTION

Expenditures (excludes power stripping)

Type of Work Performed:

Performed on Claim(s):

RECEIVED
MAY 30 1983
A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.

RECORDED
MAY 30 1983
Receipt No.

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work: 153

For Office Use Only

Total Days Cr. Recorded: 3268.08

Date Recorded: May 30/83

Mining Recorder: [signature]

Date Approved as Recorded: 83.11.25

Branch Director: [signature]

Date: May 30th/83

Recorded Holder or Agent (Signature): John A. McCance P.Eng.

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: John A. McCance, c/o Samim Canada Ltd., 130 Adelaide St. W., Toronto, Ont. M5H 3P5

Date Certified:

Certified by (Signature):

MINING CLAIMS

TOTAL NUMBER: 153 claims

NTS: 42 A/6

PROJECT NAME: Argentex-Lenora

TOWNSHIPS: Price
Fripp

MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBE
P.611261	P.611309	P.618914	P.622817	P.622880
611262	611310	618915	622818	622881
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611290	618912	622815	622878	
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'Price + Fripp Twps.

July 29th

r- 611261

Ministry of Natural Resources
Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

#154

2.5718

The Mining Act

Instructions: — Please type or print.
— If number of mining claims traversed exceeds space on this form, attach a list.
Note: — Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns. Do not use shaded areas below.

Type of Survey(s)	Township or Area
Geophysical-Airborne electromagnetic-VLF-EM field	Price and Fripp Twps.

Claim Holder(s)	Prospector's Licence No.
Samim Canada Ltd.	T-1193

Address: Suite 2116, 130 Adelaide St. W., Toronto, Ontario M5H 3P5

Survey Company	Date of Survey (from & to)	Total Miles of line Cut
Aerodat Limited	30 03 83 (Day Mo. Yr.) – 06 05 83 (Day Mo. Yr.)	N/A

Name and Address of Author (of Geo-Technical report): J.A. McCance, c/o Samim Canada Ltd. (see above)

Credits Requested per Each Claim in Columns at right

Special Provisions		Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	Geophysical	
	- Electromagnetic	
	- Magnetometer	
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Man Days		Days per Claim
Complete reverse side and enter total(s) here	Geophysical	
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
17.8 kHz Cutler, Maine		
Note: Special provisions credits do not apply to Airborne Surveys. see calculations attached	Electromagnetic	21.36
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)

Mining Claim Prefix	Number	Expend. Days Cr.	Mining Claim Prefix	Number	Expend. Days Cr.
	See list attached				

RECEIVED
JUN 1 1983
MINING LANDS SECTION

RECORDED
MAY 30 1983

PORCUPINE MINING DIVISION
RECEIVED
MAY 30 1983
A.M. 7,8,9,10,11,12,1,2,3,4,5,6 P.M.

Total number of mining claims covered by this report of work. 153

Date	Recorded Holder or Agent (Signature)
May 30th/83	John A. M'Cance P.Eng.

For Office Use Only

Total Days Cr. Recorded	Date Recorded	Mining Recorder
3268.08	May 30/83	[signature]
	Date Approved as Recorded: 83.11.25	Branch Director [signature]

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying
John A. McCance, c/o Samim Canada Ltd., 130 Adelaide St. W., Toronto, Ont. M5H 3P5

Date Certified	Certified by (Signature)
May 30 1983	J. A. M'Cance P.Eng.

MINING CLAIMS

TOTAL NUMBER: 153 claims | NTS: 42 A/6

PROJECT NAME: Argentex-Lenora | TOWNSHIPS: Price, Fripp

MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBE
P.611261	P.611309	P.618914	P.622817	P.622880
611262	611310	618915	622818	622881
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611308	618913	622816	622879	

Price & Fripp Twps.   1-611261   July 29th

Ministry of Natural Resources Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

#153

The Mining Act   2.5718

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Geophysical-Airborne total magnetic field	Township or Area: Price and Fripp Twps.
Claim Holder(s): Samim Canada Ltd.	Prospector's Licence No.: T-1193
Address: Suite 2116, 130 Adelaide St. W., Toronto, Ontario M5H 3P5	
Survey Company: Aerodat Limited	Date of Survey (from & to): 30 03 83 – 06 05 83 (Day Mo. Yr.) ; Total Miles of line Cut: N/A
Name and Address of Author (of Geo-Technical report): J.A. McCance, c/o Samim Canada Ltd. (see above)	

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
For each additional survey: using the same grid: Enter 20 days (for each)	- Other	
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
(see calculations attached)	Magnetometer	21.36
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed

Performed on Claim(s)

RECEIVED MAY 30 1983 A.M. 7 8 9 10 11 12 1 2 3 4 5 6 P.M.

Calculation of Expenditure Days Credits

Total Expenditures $ ÷ 15 = Total Days Credits

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.	Prefix	Number	Expend. Days Cr.
	See list attached				

RECEIVED JUN 1 1983 MINING LANDS SECTION

RECORDED MAY 30 1983 Receipt No. ______

Total number of mining claims covered by this report of work: 153

For Office Use Only		
Total Days Cr. Recorded: 3268.08	Date Recorded: May 30/83	Mining Recorder: [signature]
	Date Approved as Recorded: 83.11.25	Branch Director: [signature] Regional Mining Recorder

Date: May 30th/83   Recorded Holder or Agent (Signature): John A. McCance P.Eng

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: John A. McCance, c/o Samim Canada Ltd., 130 Adelaide St. W., Toronto, Ont. M5H 3P5

Date Certified: May 30, 1983   Certified by (Signature): [signature]

MINING CLAIMS

TOTAL NUMBER: 153 claims NTS: 42 A/6

PROJECT NAME: Argentex-Lenora TOWNSHIPS: Price
Fripp

MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBER	MINING CLAIM PREFIX/NUMBE
P.611261	P.611309	P.618914	P.622817	P.622880
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611289	618911	622814	622877	624022
611290	618912	622815	622878	
611308	618913	622816	622879	

Ministry of Natural Resources
Ontario

Geotechnical Report Approval

File 2.5718

Aug 19/83

Mining Lands Comments

[X] To: Geophysics Mr. Barlow

Comments		
[X] Approved [ ] Wish to see again with corrections	Date Sept 20/83	Signature R V B

[ ] To: Geology - Expenditures

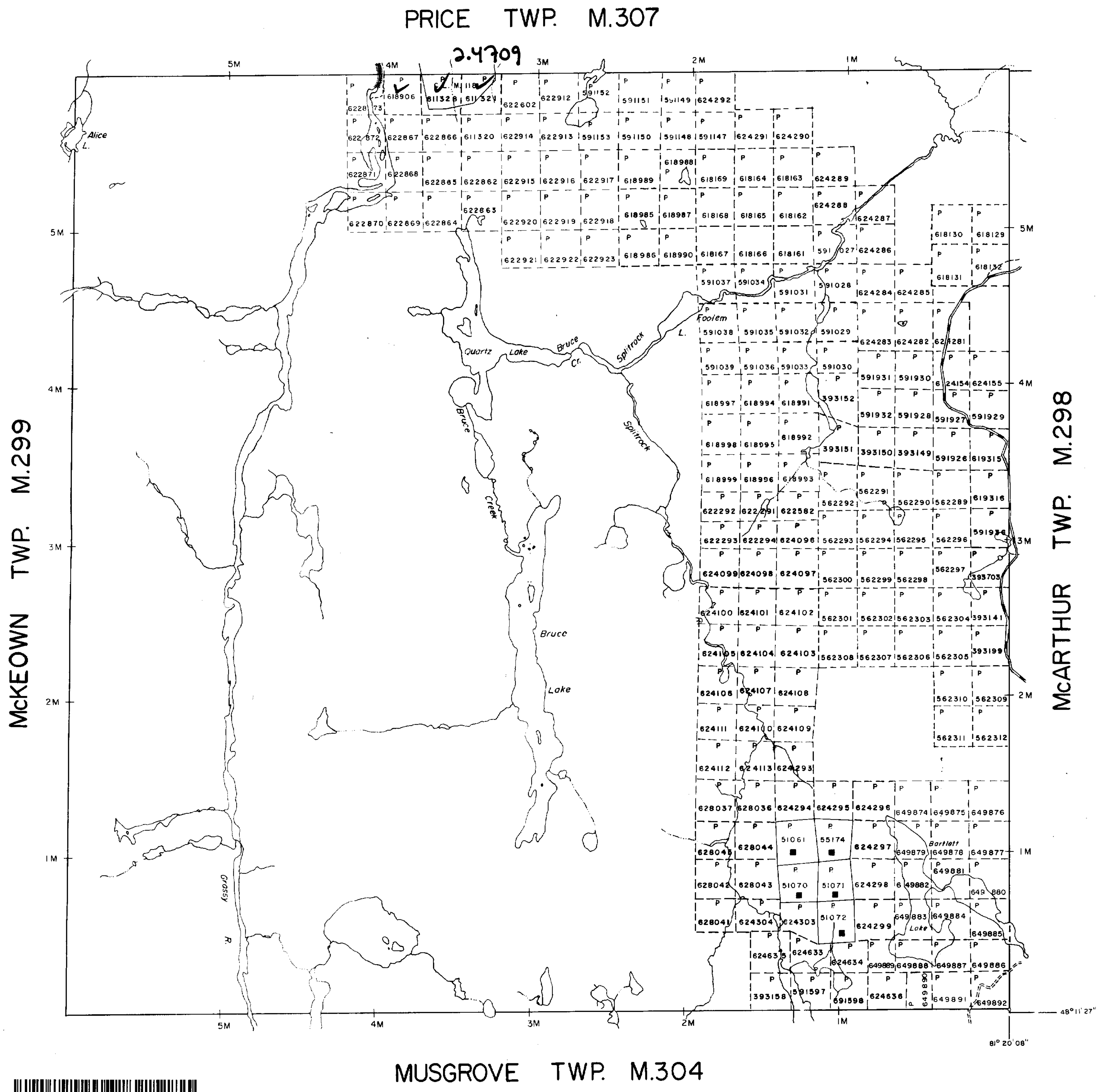
Comments		
[ ] Approved [ ] Wish to see again with corrections	Date	Signature

[ ] To: Geochemistry

Comments		
L.D.		
[ ] Approved [ ] Wish to see again with corrections	Date	Signature

[ ] To: Mining Lands Section, Room 6462, Whitney Block. (Tel: 5-1380)

1593 (81/10)



THE TOWNSHIP
OF

FRIPP

DISTRICT OF
TIMISKAMING

PORCUPINE
MINING DIVISION

SCALE: 1-INCH 40 CHAINS

DISPOSITION OF CROWN LANDS

PATENT, SURFACE AND MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	
" , MINING RIGHTS ONLY	
LEASE, SURFACE AND MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	
" , MINING RIGHTS ONLY	
LICENCE OF OCCUPATION	▼
ROADS	
IMPROVED ROADS	
KING'S HIGHWAYS	
RAILWAYS	
POWER LINES	
MARSH OR MUSKEG	
MINES	⚒
CANCELLED	C.

NOTES

400' surface rights reservation along the shores of all lakes and rivers.

Areas withdrawn from staking under Section 43 of the Mining Act (R.S.O. 1970.)

Order Nº	File	Date	Disposition

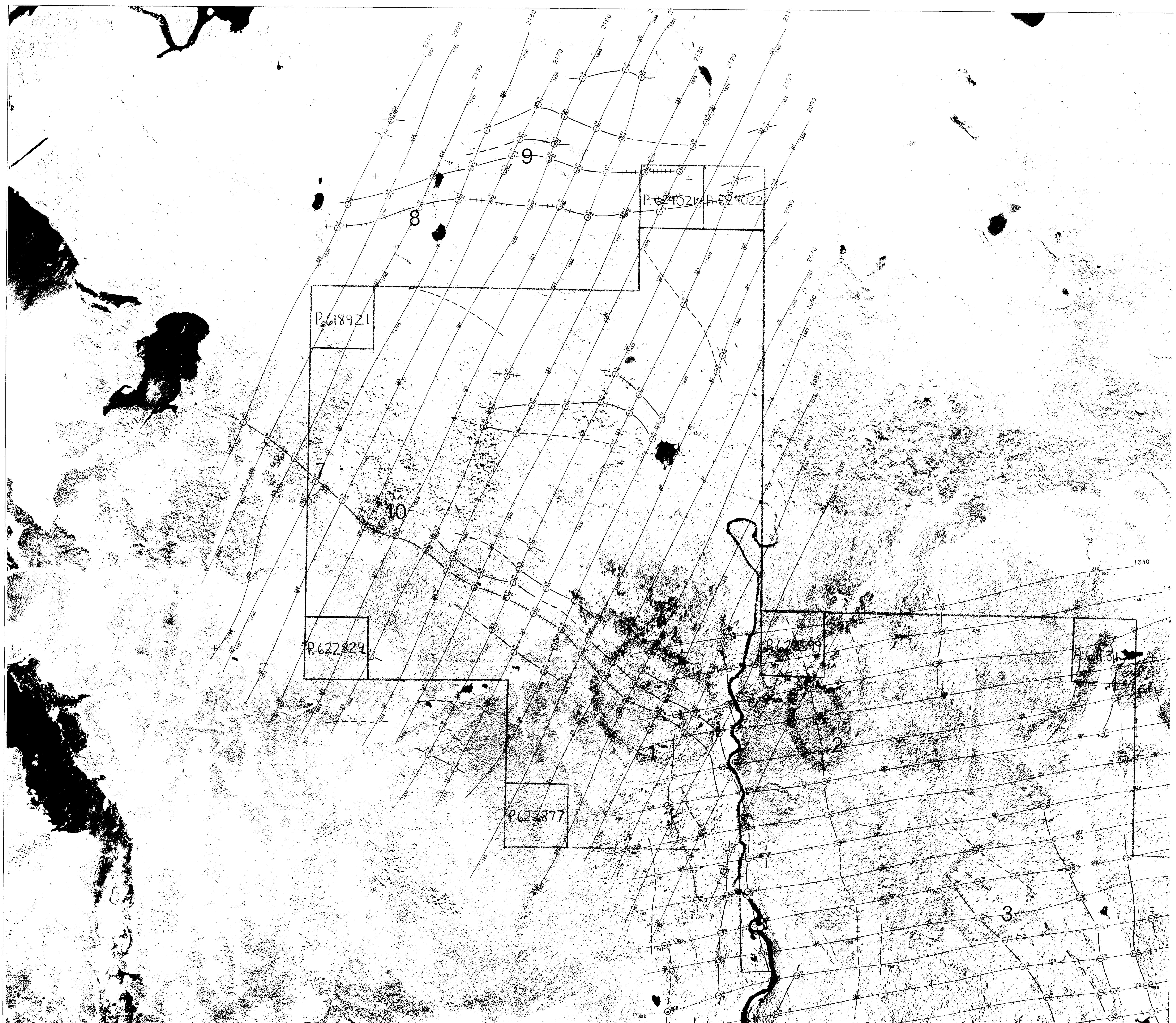
DATE OF ISSUE
JAN 11 1983
Ministry of Natural Resources
TORONTO

PLAN NO. M.281

ONTARIO
MINISTRY OF NATURAL RESOURCES
SURVEYS AND MAPPING BRANCH

42A06SW0066 2.5718 FRIPP

200



Horizontal control .... based on photo laydown

Average bird height .... 30 metres

Line spacing .... 200 metres

EM ANOMALY SYMBOLS

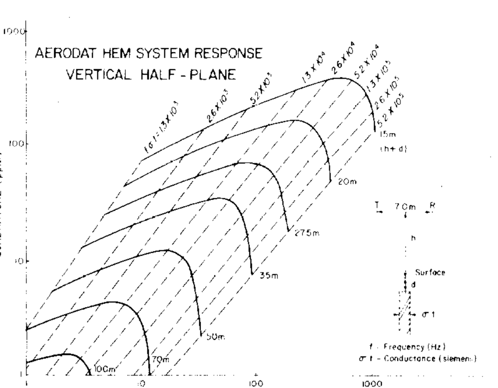
○ (2)	EM Anomaly A, in-phase amplitude 7 ppm. Conductivity thickness range 2 (see code)
A	Interpreted conductor axis "A"
┼┼○┼┼	Conductor with coincident magnetic anomaly
— ○ —	Conductor axis doubtful

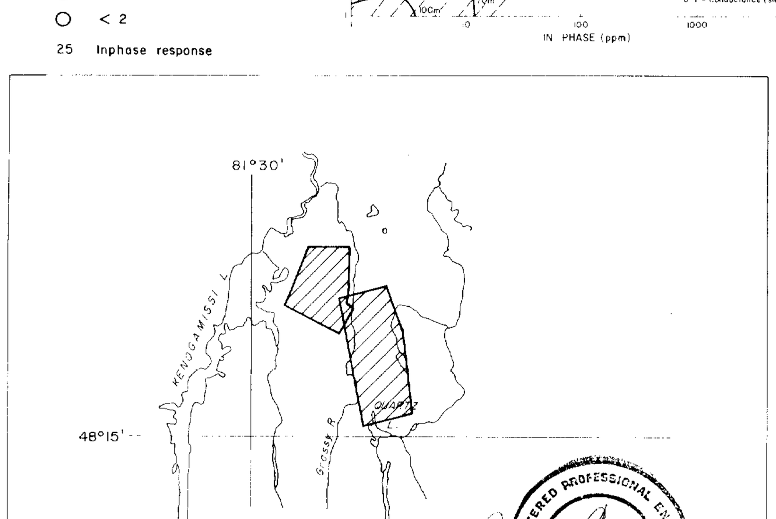
1 Priority 'TARGET' locales and favourable facies zones within iron formation

EM RESPONSE

Conductivity thickness in mhos

9	> 500
8	250 – 500
7	125 – 250
6	60 – 125
5	30 – 60
4	15 – 30
3	8 – 15
2	4 – 8
1	2 – 4
○	< 2
25	Inphase response





J. A. McCANCE
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

SAMIM CANADA LTD.

AIRBORNE ELECTROMAGNETIC SURVEY INTERPRETATION MAP

PRICE AND FRIPP TOWNSHIPS

ONTARIO

SCALE 1/10,000

0 330 660 1320 1/2 mile

0 100 200 500 1 Kilometre

▼ AERODAT LIMITED

DATE:	March, 1983
N.T.S. No:	42 A
AP No:	1

/ 210

SAMIM CANADA LTD.

AIRBORNE ELECTROMAGNETIC SURVEY
PROFILES - 915 Hz. (coaxial)

PRICE AND FRIPP TOWNSHIPS
ONTARIO

SCALE 1/10,000

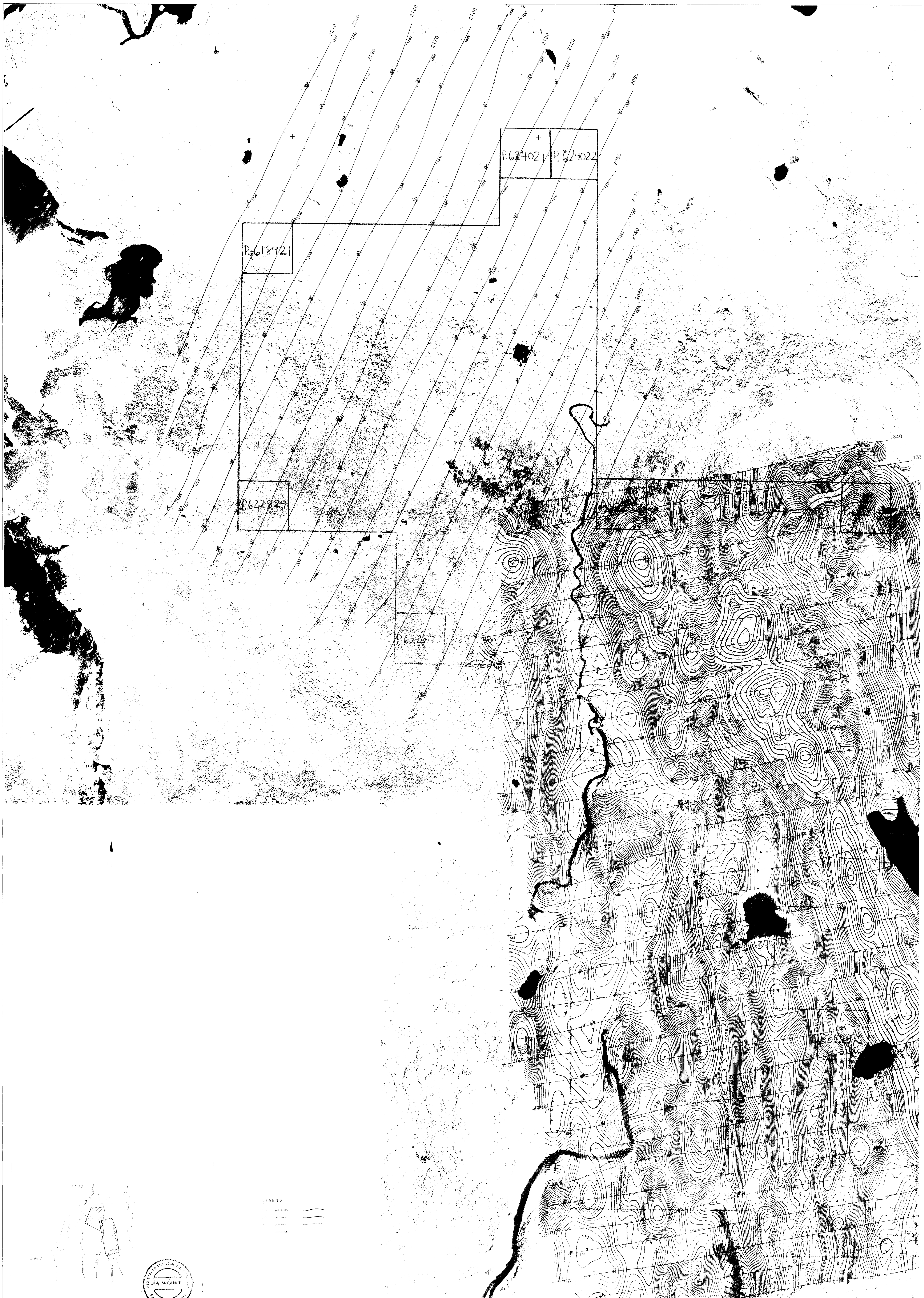
▼ **AERODAT LIMITED**

DATE:	March , 1983
N.T.S. No:	42 A
AP No:	2

42A06SW0066 2.5718 FRIPP

220


SAMIM CANADA LTD.
TOTAL FIELD MAGNETIC MAP
NORTH
PRICE AND FRIPP TOWNSHIPS
ONTARIO
SCALE 1/10,000
1/2 mile
1 Kilometre
DATE: March , 1983
N.T.S. No: 42 A
MAP No: 3
AERODAT LIMITED
REGISTERED PROFESSIONAL ENGINEER
J. A. McCANCE
PROVINCE OF ONTARIO
LEGEND
81°30'
48°15'



SAMIM CANADA LTD.

TOTAL FIELD MAGNETIC MAP

SOUTH
PRICE AND FRIPP TOWNSHIPS
ONTARIO

SCALE 1/10,000

1 Kilometre

DATE March, 1983

N.T.S. No. 42 A

No. 4

▼ AERODAT LIMITED

J.A. McCANCE

240

HERZ TOTEM 2A
VLF-EM

STATION NAA (CUTLER, MAINE)

TOTAL FIELD CONTOURS
- interval 2%
VERTICAL QUADRATURE COMPONENT
PROFILES
- vertical scale 1% / mm
- the sense of the profile is
for an easterly or northeasterly
facing receiver

LEGEND

50 %
10 %
2 %

REGISTERED PROFESSIONAL ENGINEER
J. A. McCANCE
PROVINCE OF ONTARIO

SAMIM CANADA LTD.

VLF-EM

NORTH
PRICE AND FRIPP TOWNSHIPS
ONTARIO

SCALE 1/10,000
0 330 660 1320 1/2 mile
0 100 200 500 1 Kilometre

▼ AERODAT LIMITED

DATE:	March, 1983
N.T.S. No:	42 A
MAP No:	5

42A06SW0066 2.5718 FRIPP

250

HERZ TOTEM 2A
VLF-EM

STATION NAA (CUTLER, MAINE)

TOTAL FIELD CONTOURS
- interval 2%
VERTICAL QUADRATURE COMPONENT
PROFILES
- vertical scale 1% /mm
- the sense of the profile is for an easterly or northeasterly facing receiver

LEGEND

50 %
10 %
2 %

48°15'

REGISTERED PROFESSIONAL ENGINEER
J.A. McCANCE
PROVINCE OF ONTARIO

SAMIM CANADA LTD.

VLF-EM

SOUTH
PRICE AND FRIPP TOWNSHIPS
ONTARIO

SCALE 1/10,000

0 330 660 1320 1/2 mile
0 100 200 500 1 Kilometre

▼ AERODAT LIMITED

DATE:	March, 1983
N.T.S. No:	42 A
AP No:	6

42A06SW0066 2.5718 FRIPP


P.624021
P.624022
P.629599
P.613912
P.622112
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P. 624022
P. 611317
P. 618912
P. 622912
P. 622870
P. 622923

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